

PROPOSED CAPITAL IMPROVEMENT PLAN



FINAL ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT

EEA File Number: 15964

Prepared For:

Martha's Vineyard Airport
71 Airport Road
West Tisbury, MA 02575

May 2021



Prepared By

McFarland Johnson
53 Regional Drive
Concord, NH 03301



Martha's Vineyard Airport

Capital Improvement Plan

Final Environmental Impact Report /
Environmental Assessment

EEA File Number 15964

Martha's Vineyard Airport
71 Airport Road
West Tisbury, MA 02575

May 2021

This Environmental Assessment becomes a Federal document when evaluated, signed and dated by the responsible FAA official.

Signed:  _____ Date: May 28, 2021

Name: Richard P. Doucette Title: Environmental Program Manager, FAA-New England

FEDERAL FINDING OF NO SIGNIFICANT IMPACT

After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed federal action is consistent with existing national policies and objectives as set forth in Section 101 of the National Environmental Policy Act (NEPA) and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 101(2) (c) of the NEPA.

APPROVED:  Date: May 28, 2021
Richard P. Doucette
Manager, Environmental Programs

CONTENTS

Executive Summary.....	ES-1
1 Introduction	1-1
1.1 The Capital Improvement Plan	1-1
1.2 Requirement for an Environmental Impact Report and Environmental Assessment	1-1
1.3 Airport Background.....	1-3
1.4 Airside Facilities	1-6
1.5 Landside Facilities	1-7
1.6 Airport Activity.....	1-7
1.7 Document Format and Content.....	1-9
2 Purpose and Need.....	2-1
2.1 Purpose	2-1
2.2 Need.....	2-1
3 Alternatives Analysis and Proposed Action	3-1
3.1 Alternatives Analysis.....	3-36
3.1.1 Business Park Lots 34 and 38	3-36
3.1.2 Aircraft Hangar Development	3-36
3.1.3 Improve Fuel Farm Access and Safety	3-37
3.1.4 Airspace Vegetation Management	3-37
3.1.5 Runway 15-33 Vegetation Management	3-41
3.1.6 Runway 15-33 Reconstruction	3-42
3.1.7 Taxiway E Reconstruction	3-44
3.1.8 Regrade Runway 6-24 Side Safety Areas	3-45
3.1.9 Terminal Building Renovation.....	3-46
3.1.10 Access Road Improvements	3-48
3.1.11 Aircraft Parking and Movement Areas.....	3-49
3.2 Proposed Action.....	3-53
4 Affected Environment.....	4-1
4.1 Introduction	4-1
4.2 Project Setting.....	4-1
4.3 Topography, Geology, and Soils (MEPA/NEPA)	4-2

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

4.4	Water Resources (MEPA/NEPA)	4-4
4.4.1	Surface Waters.....	4-4
4.4.2	Floodplains.....	4-6
4.4.3	Wetlands	4-6
4.4.4	Groundwater.....	4-7
4.4.5	Wild and Scenic Rivers (NEPA)	4-7
4.5	Coastal Resources (MEPA/NEPA).....	4-7
4.6	Air Quality (MEPA/NEPA).....	4-8
4.7	Climate and Greenhouse Gas Emissions (MEPA/NEPA)	4-10
4.7.1	Existing Sources of Emissions.....	4-11
4.8	Natural Resources and Energy Supply (NEPA)	4-12
4.9	Noise (MEPA/NEPA).....	4-12
4.10	Biological Resources (MEPA/NEPA)	4-13
4.10.1	Plant and Animal Habitat	4-13
4.10.2	Threatened and Endangered Species	4-20
4.11	Surface Transportation (MEPA)	4-24
4.12	Scenic Qualities, Open Space and Recreational Resources (MEPA/NEPA).....	4-25
4.13	Historic and Archaeological Resources (MEPA/NEPA).....	4-27
4.14	Section 4(F) Resources (NEPA).....	4-27
4.15	Land Use (MEPA/NEPA)	4-28
4.16	Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (NEPA) 4-31	
4.17	Hazardous Materials, Solid Waste and Pollution Prevention (MEPA/NEPA).....	4-32
4.17.1	Fuel Storage	4-32
4.17.2	Database Reviews	4-33
4.17.3	Per and Polyfluoroalkyl Substances (PFAS).....	4-33
4.17.4	Solid Waste	4-34
4.17.5	Asbestos	4-35
5	Environmental Consequences	5-1
5.1	Topography, Geology and Soils (MEPA/NEPA)	5-3
5.1.1	Federal Farmland Soils Protection	5-3
5.1.2	No-Build Alternative.....	5-3
5.1.3	Proposed Action.....	5-3

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

5.2	Water Resources (MEPA/NEPA)	5-3
5.2.1	Direct Impacts	5-4
5.2.2	Construction Impacts	5-6
5.2.3	Indirect/Secondary Impacts	5-6
5.2.4	Mitigation Measures	5-6
5.3	Coastal Resources (MEPA/NEPA)	5-7
5.4	Air Quality (MEPA/NEPA)	5-8
5.4.1	No-Build Alternative	5-8
5.4.2	Proposed Action	5-8
5.5	Climate and Greenhouse Gas Emissions (MEPA/NEPA)	5-11
5.5.1	Greenhouse Gas Emissions (MEPA)	5-12
5.5.2	Adaptation and Resiliency (MEPA)	5-20
5.6	Natural Resources and Energy Supply (NEPA)	5-21
5.6.1	No-Build Alternative	5-21
5.6.2	Proposed Action	5-22
5.7	Noise (MEPA/NEPA)	5-24
5.7.1	No-Build Alternative	5-24
5.7.2	Proposed Action	5-24
5.7.3	Construction Noise Impacts	5-25
5.7.4	Indirect/Secondary Impacts	5-25
5.8	Traffic and Surface Transportation (MEPA/NEPA)	5-25
5.8.1	No-Build Alternative	5-25
5.8.2	Proposed Action	5-26
5.8.3	Construction Impacts	5-26
5.8.4	Mitigation Measures	5-27
5.9	Biological Resources	5-28
5.9.1	No-Build Alternatives	5-29
5.9.2	Proposed Action	5-29
5.10	Land Use and the Built Environment (MEPA/NEPA)	5-41
5.10.1	No-Build Alternative	5-42
5.10.2	Proposed Action	5-42
5.11	Scenic Qualities, Open Space and Recreational Resources (MEPA); Visual Effects (NEPA)	5-43
5.11.1	No-Build Alternative	5-43

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

5.11.2	Proposed Action	5-43
5.11.3	Construction-Period Impacts	5-44
5.11.4	Indirect/Secondary Impacts	5-44
5.11.5	Mitigation Measures	5-44
5.12	Section 4(F) Resources (NEPA)	5-46
5.12.1	No-Build Alternative	5-46
5.12.2	Proposed Action	5-47
5.12.3	Construction-Period Impacts	5-47
5.12.4	Indirect/Secondary Impacts	5-48
5.12.5	Mitigation	5-48
5.13	Socioeconomic, Environmental Justice and Children's Health and Safety Risks (NEPA)	5-48
5.13.1	No-Build Alternative	5-48
5.13.2	Proposed Action	5-49
5.14	Hazardous Materials and Solid Waste (MEPA/NEPA)	5-49
5.14.1	No-Build	5-50
5.14.2	Proposed Action	5-50
5.14.3	Construction-Period Impacts	5-50
5.14.4	Indirect/Secondary Impacts	5-51
5.15	Cumulative Impacts	5-52
5.15.1	Past Projects	5-52
5.15.2	Ongoing and Reasonably Foreseeable Projects	5-52
5.15.3	Cumulative Effects of Proposed Action	5-53
6	Mitigation and Draft Section 61 Findings	6-1
6.1	Introduction	6-1
6.2	MEPA History	6-2
6.3	Required State Permits and Reviews	6-2
6.4	Draft Section 61 Findings	6-4
6.5	Beneficial Measures and Mitigation Commitments	6-5
6.5.1	Beneficial Measures and Mitigation Commitments – Water Resources	6-9
6.5.2	Beneficial Measures and Mitigation Commitments – Air Quality	6-11
6.5.3	Beneficial Measures and Mitigation Commitments – Climate and Greenhouse Gas Emissions	6-11

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

6.5.4	Beneficial Measures and Mitigation Commitments – Natural Resources and Energy Supply	6-13
6.5.5	Beneficial Measures and Mitigation Commitments – Biological Resources.....	6-14
6.5.6	Beneficial Measures and Mitigation Commitments – Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks	6-14
6.5.7	Beneficial Measures and Mitigation Commitments – Hazardous Materials, Solid Waste, and Pollution Prevention	6-14
6.6	MEPA Greenhouse Gas Emissions Self-Certification	6-16
7	Regulatory Compliance	7-1
7.1	Summary of Regulatory Compliance	7-1
7.2	Massachusetts Environmental Policy Act	7-2
7.3	National Environmental Policy Act	7-3
7.4	Airport Layout Plan Approval.....	7-3
7.5	FAA Part 77 Notification.....	7-3
7.6	USEPA National Pollutant Discharge Elimination System (NPDES).....	7-3
7.7	Massachusetts Underground Injection Program	7-4
7.8	Massachusetts Endangered Species Act	7-4
7.9	Massachusetts Contingency Plan.....	7-4
7.10	MassDEP Notification Prior to Construction or Demolition and Asbestos Removal Notification	7-4
7.11	Article 97	7-4
7.12	Department of Conservation and Recreation.....	7-7
7.13	MA Department of Transportation	7-7
7.14	Development of Regional Impact	7-7
8	Public and Agency Coordination	8-1
9	Responses to Comments.....	9-1

List of Appendices

A1 – MEPA Certificate on the Environmental Notification Form

A2 – MEPA Certificate and Comments on the Draft Environmental Impact Report

B – Distribution List

C – List of Preparers

D – Energy Model Documentation

- E – Exhibit A – Airport Property Map
- F – Agency Correspondence
- G – Surface Transportation Study (available upon request)
- H – Groundwater Elevation Data

List of Tables

Table ES-1 Proposed Projects.....	ES-1
Table ES-2 Summary of Alternatives Considered and the Basis for Selection or Rejection	ES-8
Table ES-3 Anticipated Permits and Approvals for the Martha's Vineyard Airport Five-Year Capital Improvement Plan	ES-12
Table ES-4 Approximate Areas of Overall Disturbance for Proposed Action (Acres)	ES-13
Table ES-5 Approximate Areas of Disturbance in Priority Habitat for Proposed Action (Acres)	ES-14
Table ES-6 Summary of Beneficial Measures and Mitigation Commitments	ES-14
Table 1-1 Proposed Projects	1-2
Table 1-2 Commercial Airline Destinations.....	1-6
Table 3-1 Approximate Areas of Disturbance within Priority and Estimated Habitat (Acres, Preferred Alternatives Shaded).....	3-30
Table 3-2 Approximate Areas of Disturbance within Non-Priority Habitat (Acres, Preferred Alternatives Shaded)	3-32
Table 3-3 Approximate Areas of Overall Disturbance (Acres, Preferred Alternatives Shaded).....	3-34
Table 3-4 Proposed Action	3-53
Table 4-1 National Ambient Air Quality Standards (NAAQS)	4-9
Table 4-2 Attainment/Nonattainment Designations for Dukes County	4-10
Table 4-3 Rare Species Identified by MA Natural Heritage and Endangered Species Program	4-23
Table 4-4 Environmental Justice Population Data	4-32
Table 5-1 Preferred Alternatives.....	5-2
Table 5-2 Proposed Stormwater Best Management Practices (BMPs).....	5-5
Table 5-3 Potential Landside Mobile Source Emissions from Proposed Action	5-9
Table 5-4 Terminal Building Energy Modeling Results.....	5-14
Table 5-5 Hangar 1 Energy Modeling Results	5-16
Table 5-6 Hangar 2 Energy Modeling Results	5-17
Table 5-7 Estimated Earthwork and Earth Materials for the Proposed Action	5-23
Table 5-8 Amount of Truck and Barge Traffic Required for Each Project, per Year and Construction Quarter (Round Trips from Site, Barges in Parentheses).....	5-27
Table 5-9 Number of Laborers Needed for Each Project, per Year and Construction Quarter (Work Days per Quarter)	5-28
Table 5-10 Approximate Areas of Overall Disturbance for Proposed Action (Acres)	5-30
Table 5-11 Approximate Areas of Disturbance in Priority Habitat for Proposed Action (Acres)	5-31
Table 5-12 Approximate Impacts of Proposed Action to Grass, Shrub and Tree Areas (Acres)	5-32

Table 5-13 Approximate Impacts of Proposed Action to Mapped Natural Communities within Runway Approaches (Acres).....	5-33
Table 6-1 Anticipated State Permits and Approvals for the Martha's Vineyard Airport Five-Year Capital Improvement Plan	6-3
Table 6-2 Summary of Beneficial Measures and Mitigation Commitments	6-5
Table 6-3 Estimated Costs of Infiltration Best Management Practices	6-10
Table 7-1 Anticipated Permits and Approvals for the Martha's Vineyard Airport Five-Year Capital Improvement Plan	7-1
Table 8-1 Coordination with the public and resource or regulatory agencies	8-2

List of Figures

Figure 1-1 Location Map	1-4
Figure 1-2 Existing Airport Infrastructure	1-5
Figure 1-3 Martha's Vineyard Airport Total Enplanements	1-8
Figure 1-4 Martha's Vineyard Airport Total Operations	1-8
Figure 1-5 Martha's Vineyard Airport Operations Breakdown.....	1-9
Figure 2-1 Project Locations.....	2-3
Figure 3-1 Business Park Lots 34 and 38	3-3
Figure 3-2 Aircraft Hangar Development	3-4
Figure 3-3 Improve Fuel Farm Access and Safety	3-5
Figure 3-4 Airspace Vegetation Management – Runway 6.....	3-6
Figure 3-5 Airspace Vegetation Management – Runway 24.....	3-7
Figure 3-6 Runway 15-33 and Taxiway E Alternative 5-1A – Maintain Existing Thresholds and Construct Partial Parallel Taxiway E	3-8
Figure 3-7 Runway 15-33 and Taxiway E Alternative 5-1B – Maintain Existing Thresholds and Construct South Parallel Taxiway E	3-9
Figure 3-8 Runway 15-33 and Taxiway E Alternative 5-1C – Maintain Existing Thresholds and Construct North Parallel Taxiway E	3-10
Figure 3-9 Runway 15-33 and Taxiway E Alternative 5-1D – Maintain Existing Thresholds and Construct Full Parallel Taxiway E	3-11
Figure 3-10 Runway 15-33 and Taxiway E Alternative 5-2 – Maintain Existing Thresholds, Raise Runway 15 End and Construct Full Parallel Taxiway E	3-12
Figure 3-11 Runway 15-33 and Taxiway E Alternative 5-3 – Displace Runway 15-33 Threshold 275 Feet and Construct Full Parallel Taxiway E	3-13
Figure 3-12 Runway 15-33 and Taxiway E Alternative 5-4 – Shift Runway 15-33 275 Feet and Construct Full Parallel Taxiway E	3-14
Figure 3-13 Runway 15-33 and Taxiway E Alternative 5-5 – Displace Runway 15 by 275 Feet and Construct Partial Parallel Taxiway E.....	3-15
Figure 3-14 Regrade Runway 6-24 Side Safety Areas	3-16
Figure 3-15 Access Road Alternative 8-1 – Right Turn Lane	3-17
Figure 3-16 Access Road Alternative 8-2 - Roundabout	3-18
Figure 3-17 Access Road Alternative 8-3 – Connector Road.....	3-19
Figure 3-18 Access Road Alternative 8-4 – Left Turn Lane	3-20

Figure 3-19 Terminal Building Improvements Alternatives	3-21
Figure 3-20 Terminal Building Improvements Alternatives – Alternative 1A (Preferred)	3-22
Figure 3-21 Terminal Building Improvements Alternatives – Alternative 1B	3-23
Figure 3-22 Improve Aircraft Parking and Movement Areas Alternative 9-1A – Pave Transient Turf Tie-Down Area	3-24
Figure 3-23 Improve Aircraft Parking and Movement Areas Alternative 9-1B – Pave Transient Turf Tie-Down Area	3-25
Figure 3-24 Improve Aircraft Parking and Movement Areas Alternative 9-2A – Reconfigure Southeast Ramp	3-26
Figure 3-25 Improve Aircraft Parking and Movement Areas Alternative 9-2B – New Stub Taxiway on Southeast Ramp (Preferred)	3-27
Figure 3-26 Improve Aircraft Parking and Movement Areas Alternative 9-3 – Reconfigure Southwest Ramp – Demolition (Preferred)	3-28
Figure 3-27 Improve Aircraft Parking and Movement Areas Alternative 9-3 – Reconfigure Southwest Ramp – Layout (Preferred).....	3-29
Figure 3-28 Vegetation Management Needed to Clear FAR Part 77 Approach and Departure Surfaces ..	3-40
Figure 4-1 Farmland Soils.....	4-3
Figure 4-2 Water Resources.....	4-5
Figure 4-3 Land Cover – Existing Habitat	4-15
Figure 4-4 Natural Community Classifications with Tree Heights – Runway 6.....	4-16
Figure 4-5 Natural Community Classifications with Tree Heights – Runway 24.....	4-17
Figure 4-6 Natural Community Classifications with Tree Heights – Runway 15.....	4-18
Figure 4-7 Natural Community Classifications with Tree Heights – Runway 33.....	4-19
Figure 4-8 Priority and Estimated Habitats.....	4-22
Figure 4-9 Conservation and Recreation Lands	4-26
Figure 4-10 West Tisbury Zoning	4-29
Figure 4-11 Edgartown Zoning	4-30
Figure 5-1 Natural Community Classifications with Tree and Approach Surface Elevations – Runway 6 ..	5-34
Figure 5-2 Natural Community Classifications with Tree and Approach Surface Elevations – Runway 24	5-35
Figure 5-3 Natural Community Classifications with Tree and Approach Surface Elevations – Runway 15	5-36
Figure 5-4 Natural Community Classifications with Tree and Approach Surface Elevations – Runway 33	5-37
Figure 5-5 Proposed Runway 24 Approach Surface Easement.....	5-38

EXECUTIVE SUMMARY

Project and Location

The proposed project is the Martha's Vineyard Airport Capital Improvement Plan. The project is located in the towns of West Tisbury and Edgartown, Massachusetts. Work is proposed primarily on airport property, but also on adjacent easements held by the airport and potentially on adjacent roads, road rights-of-way, and Manuel F. Correllus State Forest land.

Project Description

The Proposed Action is summarized below in **Table ES-1**. Each element or project of the Proposed Action is described in detail below.

Table ES-1 Proposed Projects

Construction Year	Project	Preferred Alternative	Description	Total Cost ¹
2021	Business Park Lots 34 and 38	1	Obtain approvals for previously developed Business Park lots; 1.2 acres impervious surface in Priority Habitat	NA
2022	Improve Fuel Farm Access and Safety	3	Convert gravel fuel farm pad to pavement and pave gravel access road, replace oil water separator	\$830,000
2022	Aircraft Hangar Development	2	Construct two new hangars; 1.0 acre new impervious in Priority Habitat	\$6.7 million
2023	Airspace Vegetation Management, Runway 6-24	4A, 4B	Remove vegetation obstructions. Including Runway 15-33, would be 33.1 acres, 29.9 on airport or easements (although easement status is uncertain), 3.2 acres in State Forest/no easement	\$1.3 million
2023	Runway 15-33 and Taxiway E Reconstruction, and Vegetation Management	5-5	Reconstruct runway and taxiway, remove shoulders, displace Runway 15 threshold 275'; extend and reconfigure taxiway; net removal of 6 acres impervious	\$10.4 million

Construction Year	Project	Preferred Alternative	Description	Total Cost¹
2028	Terminal Building Renovation	7-1A	Construct miscellaneous terminal building improvements, mainly within existing terminal use areas	\$16.9 million
2029	Aircraft Parking and Movement Areas	9-2B, 9-3	Construct new stub taxiway to Southeast Ramp; remove four buildings and expand apron area within Southwest Ramp	\$5.3 million
2030	Access Road Improvements	8-1	Construct a right-turn lane on Airport Road exiting Airport	\$608,000

Business Park Lots 34 and 38

The project was not included in the Environmental Notification Form (ENF) and was added when it was learned the lots did not previously go through the MEPA process. This project includes two lots within the Martha's Vineyard Airport (the Airport) Business Park. This land has been developed and leased for non-aviation commercial activities such as light industry, storage, service, and trades. This commercial space provides needed revenue for the Airport and adds to the Island's economic vitality without detracting from the viability of other business areas.

Lot 34 is 0.77 acre and was previously cleared of vegetation and a building is currently under construction. Lot 38 is 0.43 acre has previously been developed. Both lots are within Priority Habitat of Rare Species. The preferred alternative is for Lot 38 to remain in its current state of development and business use and to permit Lot 34 to be developed for commercial use in the future.

Aircraft Hangar Development

This project was shown as one new hangar in the ENF, and currently two new hangars are proposed.

Current hangar demand exceeds adequate available hangar space at the Airport, and the Airport is required by the FAA to generate income to support the maintenance and upkeep of the facility. The Airport has current demand from a potential new tenant and future demand is anticipated.

The preferred alternative would allow for the construction of two hangars approximately 9,200 square feet and 15,234 square feet in size plus approximately 25 total vehicle parking spaces. This alternative would require the conversion of 1.0 acres of existing vegetated land that is Priority Habitat to impervious surface and require that 0.7 acre of vegetated land, also Priority Habitat, be disturbed to construct stormwater basins and associated grading. The overall project cost, including design, construction, and contingencies, of this alternative is \$6.7 million.

Improve Fuel Farm Access and Safety

The Airport's existing fuel farm and its access road have crushed asphalt that is a source of foreign object debris (FOD) on the aprons and possibly the runways. FOD may cause damage to aircraft landing gear, propellers, and jet engines and is a recognized safety hazard. The Airport proposes to pave the access road and fuel farm area to reduce maintenance costs and keep FOD off the apron areas and runways. This alternative will also include the replacement of the existing oil-water separator with a unit designed to meet the current MassDEP stormwater standards for land use with higher potential pollution loads (LUHPPL). This alternative would not expand the existing footprint of the facility and have little impact on adjacent habitat. This alternative has a construction estimate of \$830,000.

Airspace Vegetation Management

The project was not included in the ENF and was added when the Airport determined that vegetation had grown into airspace that is supposed to be kept clear for safe movement of aircraft. Clear approaches are a critical safety concern, and the FAA has regulations and requirements for the protection of airspace and the safety of air navigation by keeping the approaches to runways clear of both natural and manmade objects ("obstructions"). Obstructions are determined by surveying the height of obstructions and comparing them with the FAA defined requirements. If the approach surfaces are not clear, then due to the hazards, FAA can restrict the use and utility of the runway for aircraft.

There are currently trees and shrubs causing obstructions within the airspace located off all four runway ends. The vegetation itself is located on Airport property, off Airport property within easements granted to protect aviation, and off Airport without easements.

For Runway 6-24, the preferred alternative would remove the vegetation obstructions, allowing the Airport to maintain the current status of the runway. The vegetation removal in the approach of Runway 6 would impact 3.7 acres of trees and the approach to Runway 24 end would impact 19.9 acres of trees. The vegetation management would be on Airport property (2.2 acres plus 0.5 acres within the shared-use path (or "bike path") easement); within aviation easements on State Forest property (13.5 acres, although the status of this easement is uncertain), and on State Forest outside of easements (3.2 acres). Within the State Forest where there are no existing easements, an easement may be needed to manage vegetation long-term. All but 0.9 acres of the vegetation management would be within Priority Habitat of Rare Species. Most of the forested habitat would be converted to successional habitat that would continue to support rare species and provide other ecosystem functions. The vegetation management along portions of both Edgartown-West Tisbury Road and Barnes Road would affect the viewshed of the shared-use path and traveling vehicles. The total cost of the project is estimated at \$1.3 million.

For Runway 15-33, the preferred Runway 15-33 Reconstruction alternative (described below) would eliminate the need to remove trees within the State Forest on the Runway 15 end. This alternative would require 9.5 acres of vegetation management on the sides of the Runway 15 end and in the approach to the Runway 33 end, all on Airport property.

Runway 15-33 Reconstruction

Runway 15-33 is the secondary runway at Martha's Vineyard Airport and was last reconstructed in 1992, with an expected service life of 20 years. The runway is showing signs of advanced deterioration with

distresses such as weathering and cracking. In addition, the runway was previously 150 feet wide, and the excess pavement along each side was never removed and has deteriorated to where it is disintegrating and causing FOD to migrate onto the runway.

As described above, the preferred alternative for Runway 15-33 would reduce the arrival length (landing distance available) on Runway 33 by 275 feet. The Airport has reviewed current usage of the runway, has solicited comments from Cape Air and the U.S. Coast Guard, both of which rely on Runway 33 for arrivals, and has determined that a reduction in arrival length of 275 feet would not adversely affect their operations. The total cost of this alternative (including Taxiway E reconstruction) would be \$10.4 million. In the future, the operational length of Runway 15-33 will need to be studied in more detail to determine the optimum arrival length for future operations.

Taxiway E Reconstruction

Taxiway E provides skewed, or non-perpendicular, access to both Runways 6-24 and 15-33. This configuration restricts visibility of the runway approach area for aircraft crossing or entering a runway. It also does not provide access to the threshold of Runway 15. To use the full runway length for departures or landings, an aircraft is required to back-taxi on the runway, which increases the risk of conflicts between aircraft using the runway.

The preferred alternative would retain the majority of the existing Taxiway E while reconstructing each end of the taxiway. A new portion of taxiway would be constructed parallel to Runway 15 which will provide a connection to the Runway 15 end and therefore eliminate the need to back taxi. At the Runway 6 end the intersection would be reconstructed to be perpendicular which will enhance visibility for pilots crossing the runway.

Regrade Runway 6-24 Side Safety Areas (No-Build Alternative)

During design of the recent Runway 6-24 rehabilitation, it was determined that the runway safety area side slopes do not meet FAA grading criteria outlined in Airport Design Advisory Circular (AC) 150/5300-13A throughout the length of the entire runway on both sides. The total acreage of the area that would need to be re-graded is approximately 26.4 acres, all within Priority Habitat. The FAA Advisory Circular specifies conditions which the side safety areas should meet (e.g., to have no hazardous ruts or other surface variations, to be well drained, to be capable of supporting rescue equipment, among other requirements). The side safety areas currently meet these requirements.

The FAA has a procedure that allows airports to request FAA approval for non-compliant conditions to remain. The Airport will submit a request to the FAA, and if approved, regrading will not be required, and the No-Build Alternative will be selected. If the modification of standards is not approved by the FAA, the side safety areas will require regrading and the preferred alternative will need to be revised. Because the existing conditions meets FAA's functional requirements for safety areas, and because it is believed the Modification of Standards will be approved, the No-Build Alternative is the preferred alternative.

Terminal Building Renovation

The existing Airport terminal building was constructed in 1999. Since that time, the airline industry and airport experience have undergone significant changes, including changes to airport security, baggage and passenger screening, and the location of airport concessions. This reduced the amount of concessions and passenger amenities such as restrooms and other services that airports provide. Changes to the airline industry include modifying the size of aircraft utilized by commercial service airlines and reductions in on-aircraft catering. These changes have required increases to screened passenger hold rooms, and more concessions and rest rooms post-security. Additionally, many systems (such as HVAC) have neared the ends of their service lives.

The preferred alternative includes the preservation and renovation of the majority of the existing structure and augments it with necessary functional space to meet the current capacity and safety needs of the Airport. The current TSA security screening area would be shifted back behind the terminal building to make room available for passenger queueing and TSA offices. The existing airline offices and break room would be reoriented to allow for baggage to be transferred from the ticket area to TSA baggage screening in the rear of the building. The existing seasonal vinyl tent and port-a-potties, along with a paved area used to park equipment located in the rear of the building, would be replaced with a permanent structure with adequate seating, air conditioning, and restrooms to accommodate the existing passenger loads. An area will be designated for Cape Air, an air carrier which operates year-round, to provide a heated waiting area for non-secure passengers. Currently Cape Air's waiting area is an outdoor pavilion located to the plan-right of the terminal building.

A new three-season pavilion will be erected behind the existing courtyard to accommodate the seasonal peak in arrival baggage. The existing baggage claim area will be upgraded with energy saving measures to maintain operation within the winter months. A new air-lock vestibule will be constructed on the front of the terminal building beneath an existing overhang to meet the state law requirement for building code efficiency.

Preserving the look and feel of the facility, renovation would include updating internal communications and technology, along with replacement of aging heating, ventilation, and cooling (HVAC) equipment and meeting other required codes. The facility's power capacity and security would also be updated to meet today's needs. The majority of the improvements would be internal, or to the airfield side of the existing terminal building, and not able to be viewed from the curb line. The total cost of this alternative would be \$16.9 million.

Access Road Improvements

At the intersection of Airport Road and Edgartown-West Tisbury Road, traffic is constant and often causes a queue on both roads. Making the left turn from Airport Road onto Edgartown-West Tisbury Road is often difficult, which causes a backup of vehicles waiting to turn both left and right since Airport Road is currently one lane. For vehicles traveling east on Edgartown-West Tisbury Road, the single lane causes a wait when a vehicle attempts to make a left turn onto Airport Road and vehicles traveling east cannot pass.

The preferred alternative is a new right-turn lane on Airport Road for turns onto Edgartown-West Tisbury Road. The purpose of this alternative is to reduce the queue on Airport Road by filtering out the

right-hand turn vehicles and shortening the queue. The right turn lane partially meets the need by reducing the wait time on Airport Road. This alternative would cost approximately \$608,000 to design and construct. This incremental improvement is the preferred alternative since it provides reduced wait time, causes the least amount of land disturbance and net new impervious surface, and is less costly than other alternatives.

Aircraft Parking and Movement Areas

Currently the Airport has four paved aprons for aircraft parking: the Southeast Ramp, North Ramp, Restaurant Ramp, and the Transient Tie-Down Ramps. The Southwest Ramp refers to the paved Transient Tie-Down Ramp and the adjacent area occupied by hangars and pavement. (Note: All of these have at times been referred to as “aprons,” and the terms apron and ramp are interchangeable.)

The Airport has seen a reduction in usable apron area for General Aviation over the last few years, due to various geometric changes required on the ramps. Overall, approximately 158,000 square feet of useable space has been lost, and the Airport needs to replace that lost apron area for parking and movement of aircraft to maintain the existing operations.

There are two proposed improvements, on the Southeast Ramp and the Southwest Ramp.

On the Southeast Ramp a new stub taxiway is proposed to provide for more spaces for larger aircraft while still providing a taxilane to be used for future hangar access. Reconstructing the Southeast ramp would create nine tie-down spaces for Group II aircraft, and five spaces for a Cessna Citation X. This alternative has a net decrease of impervious surface and disturbs approximately 0.3 acre of grass within Priority Habitat. However, additional spaces would still be needed after construction. The cost of this alternative is approximately \$1.1 million.

The second component of this project is a reconfiguration of the Southwest Ramp. The Southwest Ramp is located just south of Taxiway D and contains approximately 48 tie-down spaces (also identified as the Transient Tie-Down Ramp). The Southwest Ramp also includes the area southeast of the tie-down spaces, where there are currently four buildings and a parking lot with a taxilane that provides access to additional existing hangars. The buildings are approaching the ends of their useful lives. This alternative includes the removal of the four existing buildings, parking lot, and adjacent vegetated areas and provides a completely paved apron area. Three of the four buildings are currently used for equipment storage which the Airport has determined can be eliminated or accommodated elsewhere. The fourth building is owned by the tenant of a leased parcel, and the lease's term ends in 2025. Removal of the four buildings would reduce hangar space by approximately 21,700 square feet.

The new apron area would accommodate approximately 33 General Aviation aircraft, allowing larger aircraft to park on the existing apron. Adjacent to the pavement would be a 56-space parking lot for those who need to access their tie-downs or hangars. Reconfiguring this apron would add approximately 2.2 acres of new impervious surface and temporarily disturb 0.2 acre of vegetated land, mostly within non-Priority Habitat. The configuration of the newly paved Southwest Ramp can be adjusted to accommodate the Airport's demands closer to the time of construction. This alternative meets the needs of the Airport by providing additional parking space for the Airport. The cost of design and construction of this alternative would be approximately \$4.2 million.

Alternatives Considered

The alternatives considered for this project are summarized below. Alternatives development begins during the Master Plan Update, when an airport's existing facility condition and future facility needs are studied. A wide range of alternatives may be considered and narrowed down based on aeronautical and environmental analysis as well as public input. This project considered the Master Plan Update findings and recommendations and conducted additional studies to determine a reasonable range of alternatives for further study. Below in **Table ES-2** is a summary of the alternatives that were investigated during the preliminary engineering and environmental analysis conducted for this project.

NEPA also requires consideration of a No-Build Alternative for each project. The No-Build Alternatives reflect conditions as they are expected to exist in the future if the Airport does not implement the proposed Projects. The No-Build scenarios are not included below but are described for each project in Chapter 3.

Table ES-2 Summary of Alternatives Considered and the Basis for Selection or Rejection

(Preferred alternatives are shaded.)

PROJECT	BASIS FOR SELECTION OR REJECTION
1. Business Park Lots 34 and 38	Within Business Park and meets need by providing needed revenue; previously developed.
2. Aircraft Hangar Development	Meets need by providing hangar space as demand arises.
3. Improve Fuel Farm Access and Safety	Reduces Foreign Object Debris on aprons, improving safety; simplifies maintenance.
4. Airspace Vegetation Management – Remove Vegetation from FAR Part 77 Approach and Departure Surfaces	Meets need to keep airspace clear of obstructions, but would require substantially more vegetation removal (mostly trees) overall, in Priority Habitat, and in the Manuel F. Correllus State Forest. Not mandated by FAA at this time.
4A. Airspace Vegetation Management - Runway 6	Critical safety project that meets need by removing vegetation which is obstructing regulated airspace while minimizing impacts.
4B. Airspace Vegetation Management - Runway 24	Critical safety project that meets need by removing vegetation which is obstructing regulated airspace while minimizing impacts, but requires tree removal and likely easement in State Forest. Likely to trigger the state's Article 97 process.
5-1A. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	Maintains current runway dimensions and utility but requires vegetation management in State Forest. Considering the regulatory requirements of Section 4(f) and Article 97, this is not believed to be a viable alternative.
5-1B. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct North Parallel Taxiway E and Remove Vegetation Obstructions	Same as 5-1A.
5-1C. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct South Parallel Taxiway E and Remove Vegetation Obstructions	Same as 5-1A.

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

PROJECT	BASIS FOR SELECTION OR REJECTION
5-1D. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Full Parallel Taxiway E and Remove Vegetation Obstructions	Same as 5-1A.
5-2. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Raise Runway 15 End, Construct South Parallel Taxiway E and Remove Vegetation Obstructions	Maintains the length and utility of the runway without having to remove vegetation obstructions within the State Forest, but requires substantial fill and Priority Habitat impacts.
5-3. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15-33 Threshold 275' and Extend Runway 33 275', Construct South Parallel Taxiway E and Remove Vegetation Obstructions	Maintains the runway's functionality but 275 feet of additional pavement would be constructed on the Runway 33 end, adding more impervious surface and more Priority Habitat impact.
5-4. Runway 15-33 and Taxiway E Reconstruction - Shift Runway 15-33 275', Construct South Parallel Taxiway E and Remove Vegetation Obstructions	Shifts Runway 15-33 275 feet to the south. This alternative is more costly and would result in more impervious surface, more Priority Habitat impact, and more vegetation management than other alternatives.
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275', Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	Reduces the arrival length on Runway 33 by 275 feet but eliminates the requirement of vegetation removal in the State Forest on the Runway 15 end and minimizes the impacts of Runway 15-33 and Taxiway E improvements.
6. Regrade Runway 6-24 Side Safety Areas	Results in approximately 26.4 acres of grading around the runway within Priority Habitat. Because the existing conditions meets FAA's functional requirements for safety areas, and because it is believed FAA will approve a Modification of Standards for the substandard grades, the No-Build Alternative is preferred.
7-1A. Terminal Building Renovation – Preserve and Renovate – Seasonal	Includes the preservation and renovation of most of the existing structure, augmented with the functional space necessary to meet the current capacity and safety needs of the Airport. Includes a new three-season pavilion, new air-lock vestibule, and many system upgrades.
7-1B. Terminal Building Renovation – Preserve and Renovate – Year Round	Similar to 1A, with the option of encompassing the existing courtyard with a permanent structure and elongating the arrival baggage claim area, requiring heating during winter months when passenger volumes are at their lowest.

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

PROJECT	BASIS FOR SELECTION OR REJECTION
7-2. Terminal Building Renovation – Preserve Central Corridor and Renovate	Preserves the central corridor or main lobby area and removes the remaining portions of the building to start new. This option is much more costly than other alternatives and would create a large disruption to operations along with likely visual changes of the building from the curb line.
7-3. Remove and Replace	Removes the existing structure and starts new from the ground up. In addition to the greatest cost, this option would result in the greatest visual change from the curb line and create the largest disruption to operations.
8-1. Access Road Improvements - Right-Turn Lane	Proposes a new right-turn lane on Airport Road for turns onto Edgartown-West Tisbury Road. Partially meets the need by reducing the wait time on Airport Road; causes the least amount of land disturbance and net new impervious surface; and is less costly than other alternatives.
8-2. Access Road Improvements - Roundabout	Adds a roundabout at the intersection of Airport Road with Edgartown-West Tisbury Road. This alternative provides the greatest improvement to traffic exiting the Airport, but slightly reduces the level of service for through traffic on Edgartown-West Tisbury Road. It is more costly and affects more habitat than the preferred alternative.
8-3. Access Road Improvements - Connector Road	Widens and paves the service road, Fire Road 53, to connect the two sides of airport property. This alternative partially meets the need by reducing the number of vehicles attempting to turn left from Airport Road but will not help those who are traveling east on Edgartown-West Tisbury Road. It has more habitat impact and new impervious and is substantially more expensive than the preferred alternative.
8-4. Access Road Improvements - Left-Turn Lane	Would add both left-turn and right-turn lanes on Edgartown-West Tisbury Road by widening the road. Habitat disturbance and new impervious surface would be minimal. This alternative partially meets the need by reducing the traffic backup when traveling east on Edgartown-West Tisbury Road, but the wait on Airport Road would remain the same.
9. Improve Aircraft Parking and Movement Areas	
9-1A. Pave Transient Turf Tie-Down Area	Paves the existing turf tie-down area and reconfigures the layout to maximize aircraft parking. This would add an additional 5.1 acres of new impervious surface in

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

PROJECT	BASIS FOR SELECTION OR REJECTION
	Priority Habitat. It would cost \$4.6 million and would not provide any additional spaces for Group II or larger aircraft, so it does not meet the need.
9-1B. Pave Transient Turf Tie-Down Area, Reduced Pvmnt.	Similar to 9-1A, with less new pavement, but was rejected for the same reasons.
9-2A. Reconfigure Existing Southeast Ramp	Removes existing pavement markings and reconfigures the apron, creating space for additional aircraft. This alternative partially meets the Airport needs in adding aircraft parking, but it was eliminated as it does not add as many parking spaces as the Airport needs.
9-2B. New Stub Taxiway to Southeast Ramp	Would add a stub taxiway to the Southeast Ramp to provide for more spaces for larger aircraft while still providing a taxilane to be used for future hangar access. The additional spaces meet the need of the Airport better than the previous alternatives in that there are more spaces for larger aircraft, but additional spaces would still be needed after construction.
9-3. Reconfigure Southwest Ramp	Reconfigures the Southwest Ramp by removing four existing buildings, a parking lot, and adjacent vegetated areas and providing a completely paved apron area. It would add approximately 2.2 acres of new impervious surface, mostly within non-Priority Habitat. It would meet the Airport's aircraft parking needs by providing an additional 4.4 acres of apron space.

Permits and Approvals Required

The anticipated permits and approvals needed for the proposed Projects and the status of these approvals are listed in **Table ES-3**.

Table ES-3 Anticipated Permits and Approvals for the Martha's Vineyard Airport Five-Year Capital Improvement Plan

Issuing Agency	Approval or Permit	Status
Executive Office of Energy and Environmental Affairs	Secretary's Certificate under the Massachusetts Environmental Policy Act (MEPA)	Draft Environmental Impact Report (DEIR) submitted herein. A Final EIR (FEIR) will be noticed following the close of the comment period and issuance of the Secretary's Certificate on the DEIR.
Federal Aviation Administration (FAA)	Finding of No Significant Impact (FONSI) under the National Environmental Policy Act (NEPA)	Environmental Assessment (EA) submitted herein, FONSI anticipated at the conclusion of the NEPA process
FAA	Airport Layout Plan Approval	Approval to be issued after the FONSI
FAA	40 CFR Part 77, Form 7460-1 Construction or Alteration Requiring Notice	As required prior to construction
USEPA Region 1	National Pollutant Discharge Elimination System, Construction General Permit	If applicable, a Notice of Intent and a construction-related stormwater pollution prevention plan will be developed by the contractors prior to construction of each project
DEP Underground Injection Control Program	UIC Class V Technical Compliance Form for Stormwater Wells	Determined during 30% design
Natural Heritage and Endangered Species Program	Conservation and Management Permit	Application to be submitted after the Secretary's Certificate on the FEIR
Massachusetts Department of Environmental Protection (MassDEP)	Massachusetts Contingency Plan	As required. Hazardous materials encountered during the development would be addressed in accordance with applicable Massachusetts Contingency Plan regulations.
MassDEP and Department of Labor Standards (DLS)	BWP AQ 04 Asbestos Removal Notification form	The Airport will submit a BWP AQ 04 Asbestos Removal Notification form to MassDEP if it is determined to be applicable.
MassDEP	BWP AQ 06 Notification Prior to Construction or Demolition form	The Airport will submit a BWP AQ 06 Notification Prior to Construction or Demolition form to MassDEP if it is determined to be applicable.
Commonwealth of Massachusetts	Article 97 of Amendments to Massachusetts Constitution	Applicability to be determined as design progresses.

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Issuing Agency	Approval or Permit	Status
Massachusetts Department of Conservation and Recreation	Construction Access Permit	Applicability to be determined as design progresses.
Massachusetts Department of Transportation	State Highway Access Permit	Required for changes to Airport Road intersection with Edgartown-West Tisbury Road
Martha's Vineyard Commission	Development of Regional Impact Permit	Applicability to be determined as design progresses; likely to be required for hangar development.

Impacts

Project impacts are summarized in **Tables ES-4 and ES-5** below in terms of acreage of land to be regraded, net acreage of land to become impervious, and acreage of vegetation management or tree cutting.

Table ES-4 Approximate Areas of Overall Disturbance for Proposed Action (Acres)

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	NET NEW IMPERVIOUS	VEGETA- TION MGMT.
1. Business Park Lots 34 and 38		1.2	
2. Aircraft Hangar Development	0.8	1.0	
3. Improve Fuel Farm Access and Safety	0.2		
4A. Airspace Vegetation Management - Runway 6	0.3		3.7
4B. Airspace Vegetation Management - Runway 24			19.9
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275', Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	10.1	-6.0	9.5
7. Terminal Building Renovation			
8-1. Access Road Improvements - Right-Turn Lane	0.2	0.1	
9-2B and 9-3. Aircraft Parking and Movement Areas - New Stub Taxiway to Southeast Ramp and Reconfigure Southwest Ramp	0.5	1.9	1.0
TOTAL	12.0	-1.9	34.1

Table ES-5 Approximate Areas of Disturbance in Priority Habitat for Proposed Action (Acres)

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	NET NEW IMPERVIOUS	VEGETA- TION MGMT
1. Business Park Lots 34 and 38		1.2	
2. Aircraft Hangar Development	0.7	1.0	
3. Improve Fuel Farm Access and Safety	0.1		
4A. Airspace Vegetation Management - Runway 6	0.3		2.8
4B. Airspace Vegetation Management - Runway 24			19.9
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275 feet, Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	10.1	-6.0	9.5
7. Terminal Building Renovation			
8-1. Access Road Improvements - Right-Turn Lane			
9-2B and 9-3. Aircraft Parking and Movement Areas - New Stub Taxiway to Southeast Ramp and Reconfigure Southwest Ramp	0.3	0.0	
TOTAL	11.4	-3.8	32.2

Mitigation Measures

Beneficial measures and mitigation commitments are summarized in Table ES-6 below. More detail and discussion are provided in Chapter 6.

Table ES-6 Summary of Beneficial Measures and Mitigation Commitments

Resource Category ¹	Beneficial Measure/Mitigation Commitments
Water Resources (MEPA/NEPA)	<ul style="list-style-type: none"> Permanent Best Management Practices (BMPs) including vegetated filter strips, water quality dry swales, new deep-sump and hooded catch basins, and subsurface infiltration structures Implementation of an erosion and sedimentation control program for each construction project Updating the Airport's Spill Prevention, Control, and Countermeasure Plan (SPCC)
Air Quality (MEPA/NEPA)	<ul style="list-style-type: none"> Mitigating fugitive dust emissions through construction best management practices Requiring compliance with the requirements of MassDEP's Clean Construction Equipment Initiative Requiring that gasoline and diesel motorized construction equipment be well maintained and in good running order to minimize exhaust emissions

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Resource Category ¹	Beneficial Measure/Mitigation Commitments
	<ul style="list-style-type: none"> • Requiring record-keeping of the routine maintenance programs for internal combustion engine-powered vehicles and equipment • Where feasible, using alternative-fueled or electric equipment • Requiring construction equipment to meet the USEPA's Tier 4 Emissions Standards • Requiring that contractors enforce Massachusetts' Anti-Idling law (310 CMR 7.11) • Encouraging contractors to prepare transportation management plans to reduce worker travel by single-occupancy vehicle to the Airport
Climate and Greenhouse Gas Emissions (MEPA/NEPA)	<ul style="list-style-type: none"> • At the proposed Terminal Building Renovation and Aircraft Hangar Development Projects: <ul style="list-style-type: none"> ◦ Designing new buildings with solar-ready rooftops to the extent required by the building code in effect at the time of construction and considering installation of solar panels ◦ Installing higher performance heat pumps ◦ Replacing HVAC with a variable refrigerant flow system ◦ Installing an energy recovery ventilator as part of the variable refrigerant flow system ◦ Improving lighting efficiency ◦ Install daylighting controls in certain areas ◦ Increasing wall and roof insulations ◦ Improving curtain wall glass performance, decreasing size of curtain wall, and improving curtain wall glazing ◦ Considering Passive House improvements to hangars • Examining the potential for solar photovoltaic systems at other Airport infrastructure • Considering the Massachusetts Department of Energy Resources' recommended energy conservation measures in future versions of the Airport's Capital Improvement Plan • Requiring compliance with the requirements of the MassDEP's Clean Construction Equipment Initiative • Requiring that gasoline and diesel motorized construction equipment be well maintained and in good running order • Requiring record-keeping of the routine maintenance programs for internal combustion engine-powered vehicles and equipment • Where feasible, using alternative-fueled or electric equipment • Requiring that contractors enforce Massachusetts' Anti-Idling law (310 CMR 7.11) • Encouraging contractors to prepare transportation management plans to reduce worker travel by single-occupancy vehicle • Considering the risk of wildfire associated with proposed vegetation management, reviewing the upcoming Wildfire Protection Plan, and coordinating with appropriate DCR staff. • During final design, conducting additional analysis to ensure BMPs control runoff, address peak rate attenuation, provide groundwater recharge, and improve water quality within the design life (typically 20

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Resource Category ¹	Beneficial Measure/Mitigation Commitments
	years) of each project, considering current and future climate conditions.
Natural Resources and Energy Supply (MEPA/NEPA)	<ul style="list-style-type: none"> • Energy efficiency measures discussed above under Section 6.5.3, <i>Climate and Greenhouse Gas Emissions</i> • Installing LED technology into all new or replaced airfield lighting and signage, where appropriate • Incorporating low flow/flush into the proposed new buildings • Managing waste according to applicable federal, state, and local laws and regulations
Biological Resources (MEPA/NEPA)	<ul style="list-style-type: none"> • Avoidance and minimization measures will include delineation of work areas, contractor training, and where appropriate, bulk and manual transplanting, seed bank preservation, and follow-up monitoring • Mitigation measures may include habitat enhancement or in lieu fee and will be developed in conjunction with the NHESP through the permitting process
Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (MEPA/NEPA)	<ul style="list-style-type: none"> • Drawing from the local workforce to the extent practicable • Coordinating with the towns and local groups to ensure continued safe usage of the shared-use path and other recreational facilities during project construction
Hazardous Materials, Solid Waste, and Pollution Prevention (MEPA/NEPA)	<ul style="list-style-type: none"> • Notifying MassDEP if a reporting condition is identified per the Massachusetts Contingency Plan • Managing soils and groundwater in accordance with the applicable state and federal regulations including appropriate regulatory submittals such as a Release Abatement Measure Plan for work conducted within the limits of the active disposal site boundary associated with RTN 4-0027571 • Sampling potential asbestos containing building materials (ACBMs) and abating all asbestos according to all applicable state (310 CMR 7.15) and federal regulations prior to demolition activities. • Submitting a BWP AQ 06 Notification Prior to Construction or Demolition form to MassDEP if it is determined to be applicable. • Implementing spill response programs in the event of a spill or leak and contacting the appropriate regulatory agency • Updating the Airport's existing Spill Prevention, Control and Countermeasure Plan within the next fiscal year • Performing special handling, dust control, and management of contaminated soil and groundwater to provide adequate protection to workers and any nearby sensitive receptors • Coordination with MassDEP on managing soils with PFAS contamination, if any.

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Resource Category ¹	Beneficial Measure/Mitigation Commitments
	<ul style="list-style-type: none"> A permanent identification number would be obtained in accordance with 310 CMR 30.000 if a proposed Project generates hazardous waste and/or waste/oil
Surface Transportation (MEPA) ³	The airport access road improvements (adding a right-turn lane) would require a State Highway Access Permit from the Massachusetts Department of Transportation. As discussed in Chapter 5, <i>Environmental Consequences</i> , the Airport will coordinate with the Towns of West Tisbury and Edgartown on permanent and construction-period signage and lighting, as necessary, to promote the safe use of the shared-use path.
Scenic Qualities, Open Space and Recreational Resources (MEPA) and Visual Effects (Including Light Emissions) (NEPA)	<p>The Airport will coordinate with the Towns of West Tisbury and Edgartown on permanent and construction-period signage and lighting, as necessary, to promote the safe use of the shared-use path. The Airport will also limit uncontrolled light emissions by shielding exterior light fixtures to the extent practicable.</p> <p>The Airport will continue working with DCR to determine appropriate mitigation for State Forest tree removal and easements, consistent with the EOEEA Land Disposition Policy.</p>
Department of Transportation Act, Section 4(f) (NEPA)	<p>The Airport will coordinate with the Towns of West Tisbury and Edgartown on permanent and construction-period signage and lighting, as necessary, to promote the safe use of the shared-use path.</p> <p>The Airport will coordinate with the Department of Conservation and Recreation regarding vegetation management timing and methods to minimize disruption of users of the State Forest.</p>

1 INTRODUCTION

1.1 THE CAPITAL IMPROVEMENT PLAN

Public-use airports periodically consult with the Federal Aviation Administration (FAA) to identify critical airport development and to determine the capital needs for those projects and a schedule for funding and constructing them. The product of this consultation is the Capital Improvement Plan, which serves as the basis for the subsequent distribution of grant funds under the federal Airport Improvement Program. The Capital Improvement Plan (CIP) is reviewed and updated every year by FAA and the airport as airport infrastructure needs evolve. At Martha's Vineyard Airport, the CIP includes a schedule of projects through 2029 and identifies projects at unspecified years beyond 2029 as well.

This Final Environmental Impact Report / Environmental Assessment (FEIR/EA) addresses Martha's Vineyard Airport's Capital Improvement Plan (the Projects) that are planned to be constructed in the foreseeable future (in this case, through 2030) and that have physical footprints, i.e., that could impact environmental resources under state or federal regulatory jurisdiction. These Projects have evolved since the Environmental Notification Form (ENF), described in Section 1.2 below and appended to this document). The projects as listed in the Environmental Notification Form (ENF) and the currently proposed Projects are listed below in **Table 1-1**.

1.2 REQUIREMENT FOR AN ENVIRONMENTAL IMPACT REPORT AND ENVIRONMENTAL ASSESSMENT

The Massachusetts Environmental Policy Act or MEPA (301 CMR 11.00) has jurisdiction over projects that meet certain thresholds and require state permits or receive state funding. The CIP includes projects which, individually or cumulatively, will meet certain MEPA thresholds. Because MEPA regulations at 301 CMR 11.01(2)(c) do not allow related projects to be "segmented" or considered individually, the various project impacts must be considered collectively in determining MEPA jurisdiction. Per the thresholds in 301 CMR 11.03, depending on which alternatives are selected, the Projects could result in:

- Direct alteration of 25 or more acres of land;
- Creation of ten or more acres of impervious area; and
- Greater than two acres of disturbance of designated priority habitat.

These thresholds all require an ENF, and the impervious area threshold also requires an Environmental Impact Report (EIR). The preferred alternatives would only exceed the third threshold.

In accordance with these requirements, the Airport prepared an ENF. The ENF included information on the proposed Projects. The Massachusetts Executive Office of Energy and Environmental Affairs issued a MEPA Certificate on the ENF on February 22, 2019. The MEPA Certificate mandated preparation of an EIR and specified the scope of analysis needed in the EIR to satisfy MEPA requirements. The MEPA Certificate on the ENF is reproduced here in its entirety (Appendix A1).

Table 1-1 Proposed Projects

Project as Listed in Environmental Notification Form (ENF)	Currently Proposed Project	Location¹	Proposed Year of Construction
(Not included)	Business Park Lots 34 and 38 ²	Landside	2021
Construct Concrete Fuel Pad at Fuel Farm	Improve Fuel Farm Access and Safety	Airside	2022
Construct New Aircraft Hangars	Aircraft Hangar Development ²	Airside	2022
(Not included)	Airspace Vegetation Management	Airside and Landside	2023
Rehabilitate Runway 15/33 and Regrade Side Safety Areas	Runway 15-33 Reconstruction	Airside	2023
Remove Existing Taxiway E and Construct New Taxiway E	Taxiway E Reconstruction	Airside	2023
Runway 6-24 Side Safety Areas and Primary Surface Obstructions	Regrade Runway 6-24 Side Safety Areas	Airside	NA ³
Expand and Renovate Existing Terminal Building	Terminal Building Renovation	Landside	2028
Pave Transient Turf Tie Down Area Southeast Ramp Expansion Southwest Ramp Expansion	Aircraft Parking and Movement Areas	Airside	2029
Expand and Renovate Existing Terminal Building (in part)	Access Road Improvements	Landside	2030

Notes:

- 1 Airside refers to “the portion of an airport that contains the facilities necessary for the operation of aircraft, i.e., the secure areas of the Airport, including the airfield, which are accessible only by cleared passengers and staff. Landside refers to “The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles.”
- 2 The Lots 34 and 38 and Aircraft Hangar Development projects are not on the Capital Improvement Plan but are included here due to MEPA segmentation requirements.
- 3 NA = The project is not proposed in the current Capital Improvement Plan, but may be in future years.

After the ENF was submitted and the MEPA Certificate issued, the Airport became aware of trees obstructing airspace that FAA guidelines indicate should be kept clear of obstructions. A subsequent obstruction analysis, conducted in 2019, confirmed that there are existing or potential vegetation obstructions within all four runway approaches. The Airport is now proposing to remove these vegetation obstructions. Because this project component was not in the ENF, pursuant to 301 CMR 11.10(1), a Notice of Project Change was submitted with the DEIR/EA.

The EIR process typically involves a DEIR followed by a Final EIR. The Draft EIR was prepared and made public on January 22, 2021 . A formal public comment period followed, during which a virtual public

meeting was held, on February 23. Comments were accepted through March 5 and a MEPA Certificate on the DEIR was issued on March 12 (see Appendix A2 for the Certificate and comments). The proponent then responds to comments and any additional MEPA requirements and prepares a Final EIR, or FEIR – this document. At the conclusion of the EIR process, the Executive Office of Energy and Environmental Affairs normally issues a MEPA Certificate on the EIR. The Certificate documents compliance with MEPA and specifies additional studies that may be needed, if any.

The National Environmental Policy Act or NEPA (40 CFR 1500-1508 and 23 CFR 771) requires federal agencies to determine whether there are significant impacts associated with federal actions, including federally funded projects.

Martha's Vineyard Airport's CIP includes several projects that are federally funded and therefore subject to NEPA. Because it is uncertain whether there are significant impacts, per NEPA (23 CFR 771.115(c)) an Environmental Assessment (EA) must be prepared. The EA process includes opportunities for public review and comment. If, after project environmental impacts and mitigation measures are taken into account, the FAA determines the impacts are not significant, it will issue a Finding of No Significant Impact.

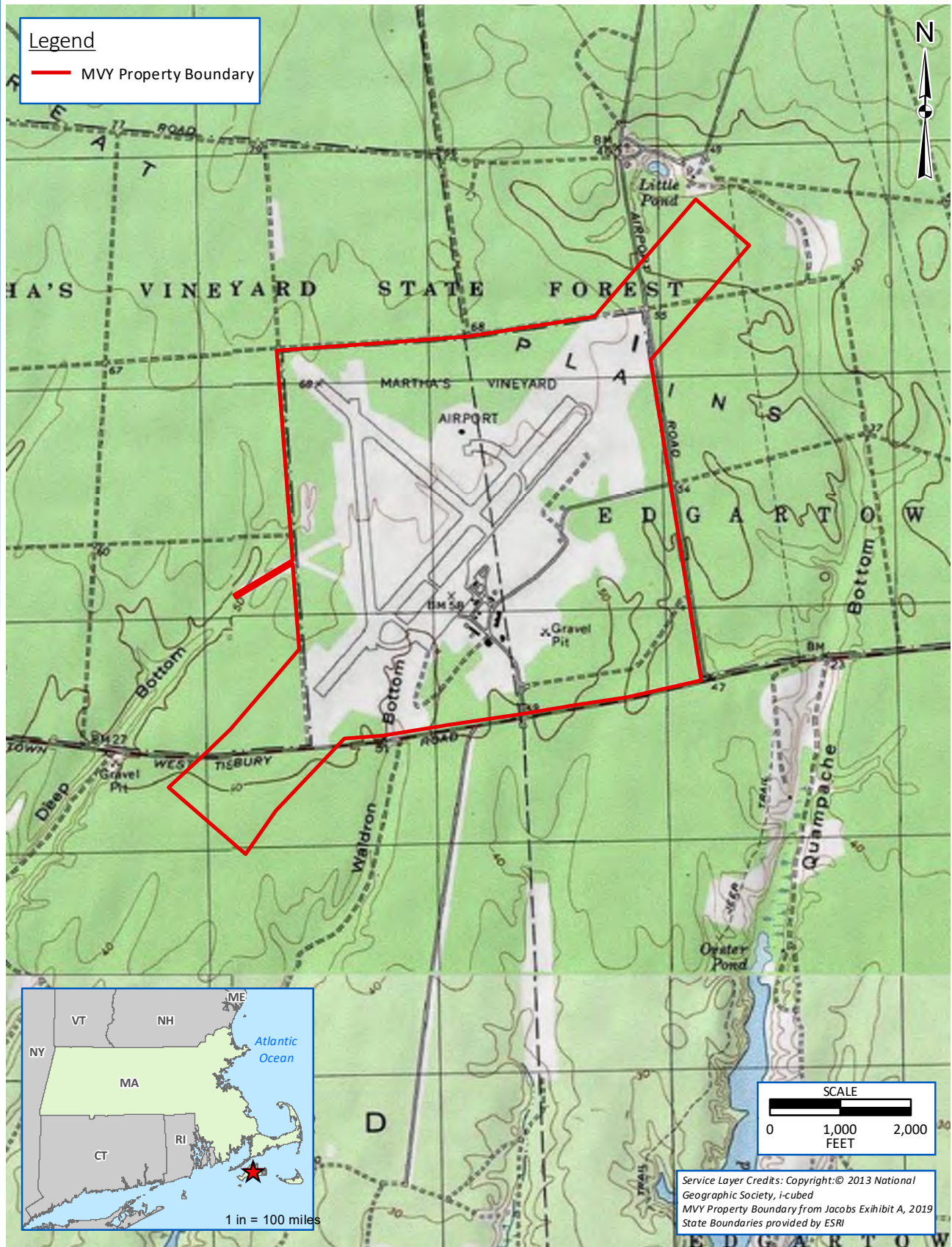
1.3 AIRPORT BACKGROUND

Martha's Vineyard Airport (MVY or "the Airport") is located on the island of Martha's Vineyard (**Figure 1-1**). During the summer months of July and August, Martha's Vineyard is a premier seasonal tourist destination. There are approximately 15,000 year-round residents. However, during the summer months, this number increases to approximately 125,000 (more than an eight-fold increase). Annually, the Airport enplanes over 50,000 passengers with commercial airline destinations identified (**Table 1-2**).

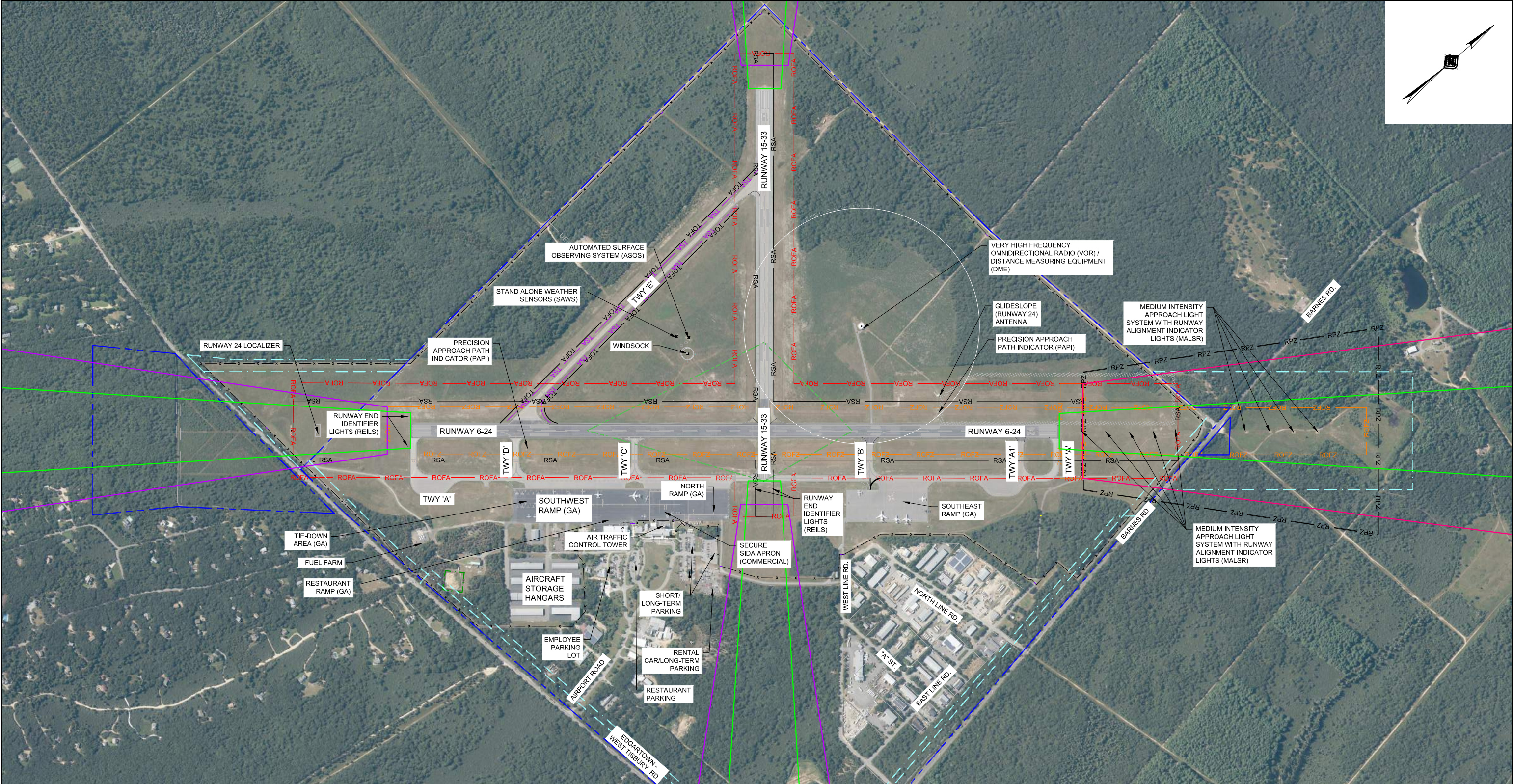
The Airport operates 24 hours a day and has a staffed Air Traffic Control Tower (ATCT). The ATCT is located above the terminal building. The ATCT is open between 6am and 10 pm from May 15th to October 31st and between 7am and 5pm from October 1st to May 14th.

Existing airport infrastructure is discussed below and is shown on **Figure 1-2**.

Figure 1-1: Location Map

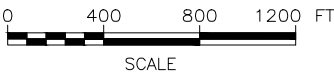


Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\MVY-USGSLocation.mxd



LEGEND

- SECURITY FENCE LINE
- APPROXIMATE AIRPORT PROPERTY LINE
- APPROXIMATE AIRPORT EASEMENT LINE
- RSA RUNWAY SAFETY AREA
- POFZ PRECISION OBJECT FREE ZONE
- ROFZ RUNWAY OBJECT FREE ZONE
- ROFA RUNWAY OBJECT FREE AREA
- RPZ RUNWAY PROTECTION ZONE
- TSA TAXIWAY SAFETY AREA
- TOFA TAXIWAY OBJECT FREE AREA



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT
EXISTING AIRPORT INFRASTRUCTURE

McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

SCALE: 1" = 400'
DESIGN: SRS
DRAWN: R.J.L.
PROJECT: 18226.07
CHECKED: M.T.O.
DATE: NOVEMBER 2020

Table 1-2 Commercial Airline Destinations

Airline	Destination(s)
American Airlines	Ronald Reagan Washington National Airport (DCA), Charlotte Douglas (CLT), Philadelphia International Airport (PHL)
Cape Air	Boston Logan International Airport (BOS), John F. Kennedy International Airport (JFK), White Plains Westchester County Airport (HPN), New Bedford Regional Airport (EWB), Hyannis' Boardman-Polando Field (HYA), Nantucket Memorial Airport (ACK)
Delta	LaGuardia Airport (LGA)
JetBlue	John F. Kennedy International Airport (JFK), Boston Logan International Airport (BOS), Ronald Reagan National Airport (DCA), Newark (EWR)

Source: Martha's Vineyard Airport Website (November 2020)

1.4 AIRSIDE FACILITIES

The Airport has two runways: Runway 6-24 and Runway 15-33. Runway 6-24, the Airport's primary runway is 5,504 feet long and designed for C-III aircraft. Aircraft are classified by approach speed from A slowest to E fastest, and by dimensions for tail height and wingspan, with I being the lowest tail height and smallest wingspan to VI having the highest tail height and largest wingspan. Runway 15-33, called the crosswind runway because it may be used when there are crosswinds on the main runway, is 3,328 feet long and is designed for B-II aircraft.

The conditions under which a runway or runway end will be used are based on a number of factors, including wind conditions. Ideally, all aircraft will take off and land in the direction of the wind and the pilot will select the runway accordingly. However, runway characteristics (such as length and width), weather conditions, as well as the availability of instrument approach procedures and navigational aids, will also impact a pilot's selection of a runway to utilize.

The Airport presently maintains six taxiways, Taxiways A, A1, B, C, D, and E. Taxiways A, A1, B, C and D are 50 feet wide and meet FAA standards for Taxiway Design Group (TDG) 2 and Runway Design Code (RDC) C-III aircraft. (Taxiway Design Groups are based on aircraft size and range from 1 to 7, smaller to larger.) Taxiway E is 35' wide and has a TDG-1A designation which represents the class of aircraft that primarily use that taxiway. Taxiway A is a full-length parallel taxiway that runs south of Runway 6-24. All taxiways with access to Runway 6-24 (Taxiways A, A1, B, C, and D) intersect with the runway at a 90-degree angle. Taxiway E meets Runways 15-33 and 6-24 at a 45-degree angle.

Operationally, aircraft departing from the terminal or transient parking will utilize Taxiway A to depart from Runway 6-24 and Runway 33, and Taxiway E to depart from Runway 15. The starting point during takeoff typically depends on wind directions. Ideally, aircraft that are preparing to depart from Runway 6-24 will usually exit the aprons (aircraft parking areas) in the terminal area and navigate using full-length parallel Taxiway A and then enter the runway at the end of each taxiway. For arrivals, aircraft

landing on Runways 6 will typically exit the runway at either Taxiways A, A1, or B and will utilize Taxiway A to taxi to the terminal area aircraft parking areas. For aircraft landing on Runway 24, aircraft will typically exit the runway at Taxiways A, C, or D and will similarly use Taxiway A to taxi to the terminal area aircraft parking areas.

For aircraft departing from Runway 15-33, there are several operational configurations. For aircraft departing on Runway 33, aircraft will utilize Taxiway A to taxi to the runway end. For aircraft departing on Runway 15, there are two primary routes. All aircraft will start on Taxiway A. Aircraft can either utilize Taxiway D to cross Runway 15-33 and access Taxiway E, which will provide access to Runway 15-33. From there, aircraft will back-taxi on Runway 15-33 to the Runway 15 end and can proceed to takeoff. Alternatively, aircraft can utilize Taxiway A to taxiway to the Runway 33 end and can back-taxi along the length of Runway 15-33, including crossing Runway 6-24, and then can proceed to takeoff on Runway 15. All aircraft landing on Runway 15 will exit at Taxiway A. For aircraft landing on Runway 33, aircraft can exit at Taxiway E and then follow to Taxiway D and Taxiway A. Aircraft can also back-taxi on Runway 15-33 directly to Taxiway A, if necessary.

1.5 LANDSIDE FACILITIES

The Airport has several facilities vital to successful and efficient daily operation. The terminal building was built in 1998 and provides space for passenger arrival and departure, baggage screening, baggage claim, Transportation Security Administration (TSA) operations, as well as ticket purchasing, rental car services, dining services, restrooms, and other activities.

The Airport Rescue and Fire Fighting / Snow Removal Equipment Building is located southwest of the Terminal building and is used to house emergency personnel and medical equipment in the event of an emergency. In addition, equipment to maintain the airport grounds are also stored in this building. Staff dormitories are located on site to ensure airport rescue and/or firefighting services are available 24 hours a day.

The Airport operates as the Fixed Base Operator (FBO) servicing based and transient aircraft. The FBO provides a variety of services which include aircraft fueling, deicing and anti-icing, parking, tie down and/or hangar storage (for transient aircraft), as well as a conference room, flight planning, weather center access, rental car services, a crew lounge/rest area, and many other services. Airport operations staff are responsible for line service, which includes parking aircraft and pumping 100LL, Jet-A fuel, MoGas, and Diesel fuel. The FBO is open daily from 5am until 10pm.

The Airport has seven T-hangars for based aircraft with a total of 74 individual storage units. Aircraft parking/tiedown areas are divided into several areas on the Airport. There are 28 turf tie-down spots east of the fuel farm, as well as a transient tie-down area directly south of Taxiway A.

1.6 AIRPORT ACTIVITY

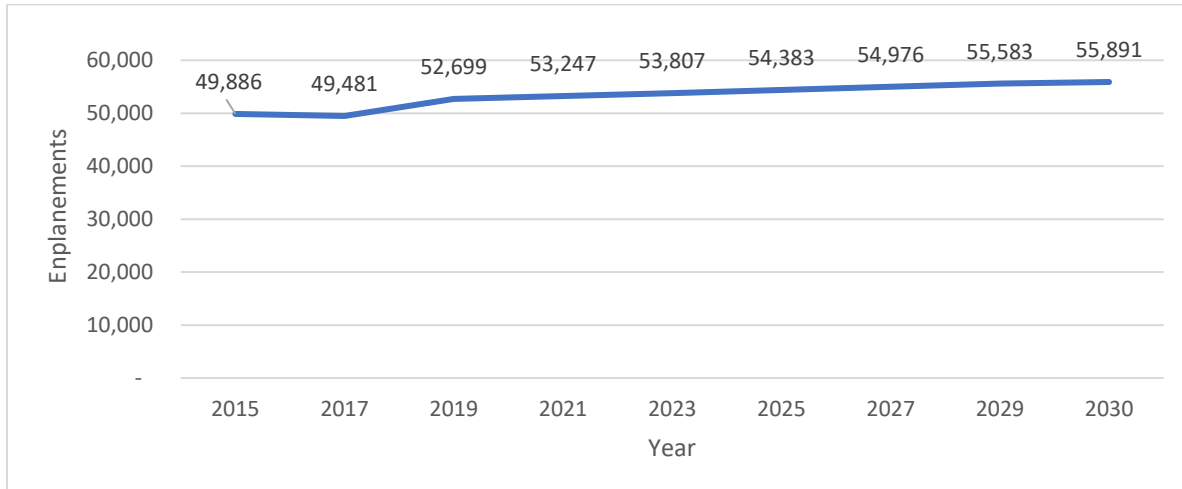
Since Martha's Vineyard is an island, there are only two means of access to the island: either by air or water. Scheduled ferry and air service serve the majority of travelers to/from the Island. Privately owned boats and airplanes provide the remaining transportation options. The FAA Terminal Area Forecast (TAF) records and projects enplanements (the number of passengers boarding flights) and operations (the

number of distinct aircraft takeoffs or landings) at U.S. commercial and general aviation airports. Data regarding enplanements and operations at the Airport can be found below in **Figure 1-3**. In the past five years, the Airport experienced an initial slight decline in enplanements, followed by a steady increase in enplanements. Therefore, the FAA TAF has projected continued marginal growth through 2030.

In terms of total operations, the Airport has experienced a gradual increase from 35,271 in 2017 to an estimated 37,226 in 2019. Data regarding total operations can be found below in **Figure 1-4** while a breakdown of the operations between Air Carrier/Air Taxi/Commuter and General Aviation/Military can be found in **Figure 1-5**. The FAA TAF projects a gradual increase to 39,030 total operations in 2030.

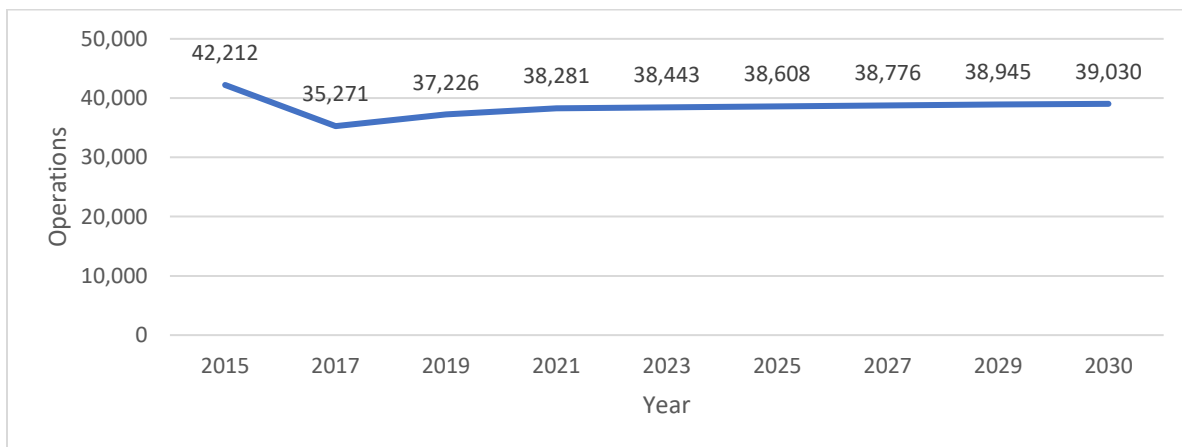
The Airport experiences high seasonal peaks in aircraft operations, with almost 50 percent of all operations conducted within a three-month period (June, July, and August). These peaks are one of the strongest seasonal peaks of any airport in the U.S.

Figure 1-3 Martha's Vineyard Airport Total Enplanements



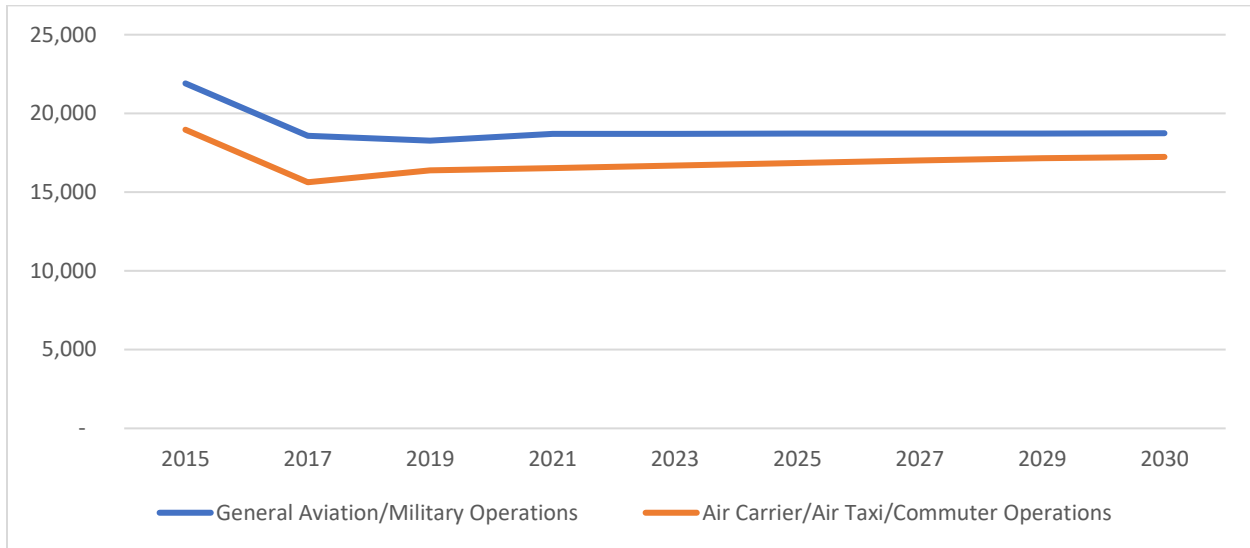
Source: FAA Terminal Area Forecasts 2020

Figure 1-4 Martha's Vineyard Airport Total Operations



Source: FAA Terminal Area Forecasts 2020

Figure 1-5 Martha's Vineyard Airport Operations Breakdown



Source: FAA Terminal Area Forecasts 2020

1.7 DOCUMENT FORMAT AND CONTENT

This FEIR/EA has been prepared to meet format and content requirements of both the MEPA EIR and the NEPA EA. The principal guidance for preparing this document includes:

- MEPA Regulations (301 CMR 11.07, *EIR Preparation and Filing*)
- FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*
- FAA's 1050.1F Desk Reference
- FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*

2 PURPOSE AND NEED

2.1 PURPOSE

The purpose of the proposed Projects is to safely accommodate current and anticipated aviation demand, provide adequate facilities in support of aviation, and provide needed revenue at Martha's Vineyard Airport.

2.2 NEED

The need for the proposed Projects is driven by existing and anticipated aviation demand, the aging condition of current infrastructure, FAA safety and security requirements (particularly those enacted since September 11, 2001), and Airport revenue needs. The need for individual projects is described below. All project locations are shown in **Figure 2-1**. References to FAA design guidelines, unless otherwise noted, refer to FAA Advisory Circular AC 150/5300-13A – Airport Design.

Business Park Lots 34 and 38

The Business Park provides opportunities for commercial enterprises to conduct business operations, while providing the Airport with additional needed revenue. The leasing and commercial use of Business Park Lots 34 and 38 fosters the highest and best use of these lands for private businesses to operate and financially support the Airport. These lots are not required for aviation use and are considered compatible with adjacent land uses.

Business Park Lots 34 and 38 were previously developed in state-designated Priority Habitat of Rare Species without obtaining required approvals. While they are not aviation-related, they are on Airport property and under Airport ownership. Due to the MEPA segmentation clause (301 CMR 11.01), these lots must be considered in conjunction with the CIP.

Aircraft Hangar Development

Aircraft hangars are necessary because they protect aircraft from harsh weather elements and ensure aircraft readiness. Hangars reduce or eliminate the need for using deicing chemicals on aircraft and collection of these chemicals in adverse weather conditions. Hangars also provide additional security to the aircraft when not in use. In addition, hangars generate Airport revenue through ground leases, fuel sales, and other fees. Currently hangar demand exceeds availability of adequate space at the Airport.

The Airport has a potential new tenant interested in leasing a hangar and basing their aircraft at the Airport. Demand for hangar space is difficult to predict but arises periodically, and other potential tenants have asked Airport staff about hangar space recently. The demand for a second hangar at some point in the next few years is anticipated.

Improve Fuel Farm Access and Safety

The existing fuel farm surface and access road consist of crushed asphalt millings. This can become lodged in the tread of the fuel truck vehicle tires and are tracked onto the aircraft apron and have the potential to cause these objects, called Foreign Object Debris (FOD), to foul the runways and taxiways.

FOD can cause damage to aircraft, equipment and airport personnel and poses a significant airport safety hazard.

Repaving the fuel farm surface and access road with asphalt will eliminate the FOD hazard. As part of the project the existing oil-water separator will be replaced with a larger unit that will handle the increase in runoff from the paved fuel farm surface.

Airspace Vegetation Management

In aviation, airspace is the air available to aircraft to fly in. FAA guidance and grant assurances urge airports to monitor surrounding airspace and keep it clear of objects that aircraft may encounter when landing on or taking off from a runway. When objects penetrate protected airspace, they are called obstructions. Airspace obstructions are serious hazards which can threaten human life and property.

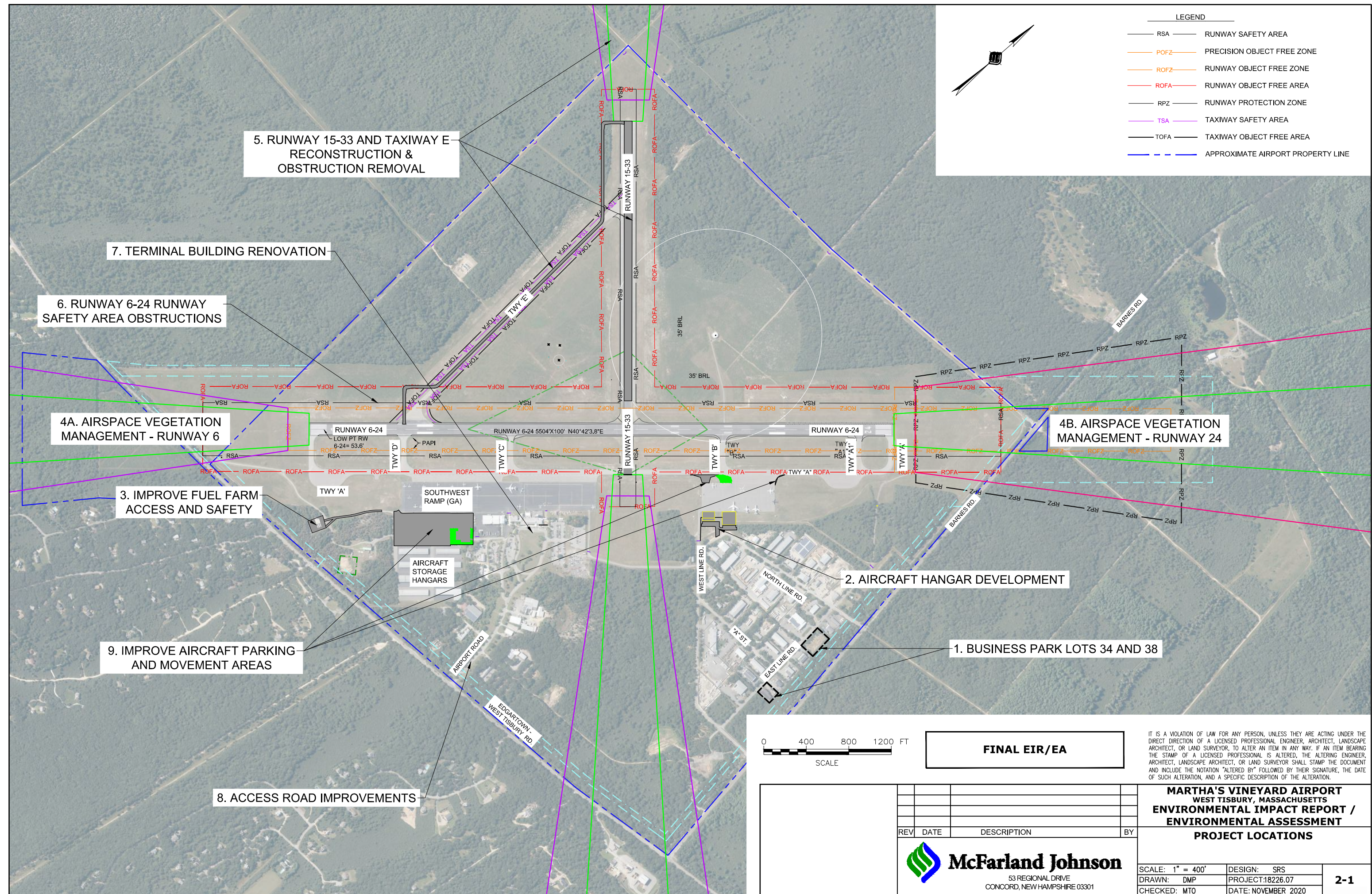
FAA Advisory Circular AC150/5300-13A (Airport Design) defines the various kinds of protect airspace. The Advisory Circular states that "runway approach surfaces should be clear of obstructions." Based upon an obstruction analysis conducted for the Airport in 2019¹, all four runway ends contain vegetation which obstructs protected airspace. The presence of the obstructions prevents the runways from meeting FAA standards and poses a safety hazard to human life and property. Failure to remove the obstructions could cause the FAA to require modifications to the runways. These could include shortening a runway, limiting the size and type of aircraft allowed on a runway, eliminating the use of a runway during inclement weather, or other modifications.

Removing the obstructions is necessary to protect the safety of the flying public and to preserve the current utility of the runways. The vegetation removal will include a habitat management component, which will be developed in consultation with the appropriate agencies.

Runway 15-33 Reconstruction

Runway 15-33 is the secondary runway at Martha's Vineyard Airport with a length of 3,328 feet and a width of 75 feet. It is also called the crosswind runway because it may be used when there are crosswinds on the main runway, and pilots prefer to land and take off heading into the wind. The runway was last reconstructed in 1992, and the FAA typically expects a service life of 20 years. The runway is showing signs of advanced deterioration with distresses such as weathering and cracking prevalent. In addition, the runway was previously 150 feet wide, and the excess pavement along each side was never removed and has deteriorated to where it is disintegrating and causing FOD to migrate onto the runway. This excess pavement will be removed and restored as grass habitat which will contribute to the overall acreage of Priority Habitat of Rare Species on the Airport.

¹ McFarland-Johnson, Inc. (2020). *Aeronautical Survey and Approach Obstruction Study (DRAFT)*.



As part of runway reconstruction, the FAA also requires that runway safety areas meet criteria. Runway safety areas are paved or turf areas located at the ends and along the sides of runways that meet FAA criteria for their purpose. They must be capable of supporting aircraft during emergency situations, be free of obstructions, and be cleared and graded to drain runoff. The side safety areas along Runway 15-33, which are turf, require grading to meet these criteria.

Runway 15-33 needs to be reconstructed to current FAA design standards.

Taxiway E Reconstruction

The Taxiway E configuration follows the geometry of the former U.S. Navy configuration, which had three runways in a triangular configuration. Converted from a former runway, Taxiway E provides skewed, or non-perpendicular, access to both Runways 6-24 and 15-33. This configuration restricts visibility of the runway approach area for aircraft crossing or entering a runway. The current configuration of Taxiway E also does not provide access to the threshold of Runway 15. (Runway thresholds are markings that indicate the beginning and end of designated runway space for landings and takeoffs.) To get to the Runway 15 threshold, pilots must taxi aircraft along the runway, which occupies the runway for a longer period and increases the potential for conflicts between aircraft using the runway.

Taxiway E needs to be reconstructed to comply with current FAA design standards and needs to be extended to provide access to the Runway 15 end.

Regrade Runway 6-24 Side Safety Areas

Runway safety areas run along both sides of a runway and off each end, and are designed so that aircraft that overshoot, undershoot, or run off the side of a runway can safely come to a stop. During design of the recent Runway 6-24 rehabilitation, it was determined that the runway safety area side slopes do not meet FAA grading criteria outlined in Advisory Circular (AC) 150/5300-13A throughout the length of the entire runway on both sides.

The side safety areas need to be regraded to meet FAA Criteria.

Access Road Improvements

The curb-side pickup/drop-off area and terminal access road (the Airport-owned Airport Road) are at times congested. Taxis and buses park on the grass, and Airport staff and police officers directing traffic are met with confrontation. The vehicle queue at the entrance road backs up from the State-owned and -maintained Edgartown/West Tisbury Road to the terminal building. The 2016 Master Plan included a traffic analysis, and the intersection of Airport Road and Edgartown/West Tisbury Road varied by time of day from level of service (LOS) C for the morning peak to LOS F for the mid-day peak to LOS E for the evening peak. Level of service is a standard traffic measuring system with LOS A being free flowing traffic, and LOS F being gridlock. Vehicles occasionally cut across the landscaped area, knocking over lighting, to bypass the left-turn queue. A more recent Surface Transportation Study (Appendix G, available upon request) modeled traffic conditions based on counted vehicle volumes and roadway geometry and determined that the 95th percentile queue lengths at the Airport Road stop sign are 625 feet.

Traffic conditions on Airport Road should be improved.

Terminal Building Renovation

The current terminal building capacity is insufficient to meet current demand. The existing building provides a total of 9,800 square feet. The 2016 Master Plan Update identified an existing (2014) need of approximately 18,100 square feet and an anticipated (2020) need of 21,850 square feet, more than double the existing capacity, using the Airport Cooperative Research Program Terminal Planning Spreadsheet Model. Martha's Vineyard has seasonal traffic, with almost half of its annual enplanements and operations occurring within three months of the year. Since the Master Plan Update was developed, the airlines have revised their fleet and flight schedules to utilize more Embraer E175 and E190 aircraft, which carry more passengers per flight than the previous CRJ-200.

The current terminal building has existing deficiencies which include security checkpoint capacity deficiencies; outbound baggage screening and make-up capacity and flow inefficiencies; passenger hold-room dysfunction and capacity deficiencies; in-bound baggage claim capacity deficiencies; and access road, curbside, and traffic flow dysfunction.

Previously constructed in 1999, the pre-September 11, 2001 terminal building does not provide the necessary space to meet existing TSA security requirements. Current conditions lead to long security lines and holding areas in open courtyards with no restrooms or other facilities.

Although the passengers and number of flights at the Airport have not changed substantially in recent years, the type and size of the aircraft have changed over time to accommodate more passengers per flight with fewer flights. Compounding the situation were the scheduled arrival and departure times adopted by several airlines to correlate with their national schedules. This resulted in peak periods of passengers arriving and departing through the terminal facility. Over the last 20 years, the passenger volume peak has overcome the original design of the building's mechanical and electrical infrastructure. The heating and cooling system was not designed for the number of people using the lobby, and the electrical panels no longer have capacity for additional equipment or outlets.

The growth at the Airport over the last 20 years has overcome the original design of the building's mechanical and electrical infrastructure. The heating and cooling system was not designed for the number of people using the lobby, and the electrical panels no longer have capacity for additional equipment or outlets.

The baggage claim area is too small for the number of passengers serviced by the airlines. Airlines are not able to efficiently provide baggage services at the terminal due to the lack of available space and insufficient electrical capacity. This results in baggage not being loaded on the departing aircraft, and unnecessary baggage area congestion and delays for arrivals which further exasperate the peak passengers in the terminal building.

The terminal building needs to be redesigned and renovated to current terminal and building codes and standards, including TSA requirements.

Aircraft Parking and Movement Areas

The 2016 Martha's Vineyard Airport Master Plan Update estimated there was 671,400 square feet of apron space with 82 aircraft parking positions, plus an additional 110,000 square feet of turf with 28

aircraft tie-downs. The Master Plan Update further estimated that aircraft based at the Airport would increase from 88 in 2012 to 118 by 2040. Counting tie-downs and hangar space, the Master Plan Update predicted would be a need for 20 additional based aircraft spaces but stated that additional tie-downs should be provided only if there was demonstrated demand.

Since the Master Plan Update was published, the Airport has seen a reduction in the amount of apron area available for General Aviation due to several reasons. The number and type of aircraft that use the Airport, known as the fleet mix, have been evolving over time. The Airport has seen an increase in the size of jets which resulted in a change of airplane design group from Group II to Group III. This has increased the required Taxiway Object Free Area width for Taxiway A from 131 feet to 186 feet. The additional Taxiway Object Free Area requirements have reduced the existing apron area by 27.5 feet along the entire length. This has resulted in a reduction of approximately 50,625 square feet of apron area.

The recent implementation of a no-taxi apron island across from Taxiway C has also resulted in a reduction of usable apron area because the apron now has to be devoted to a taxilane to navigate around the apron island. A new no-taxi apron island is also proposed at Taxiway D on the Southwest Ramp (in the Transient Tie-Down area, shown in Figure 1-2), which will result in three aircraft tie-downs being lost. The no-taxi apron island across from Taxiway B near the Southeast Ramp has also greatly reduced the capacity of the existing apron.

The construction of the new Aircraft Rescue and Fire Fighting building resulted in a designated fire lane from the building to Taxiway A, which prevents aircraft from parking in the vicinity. This resulted in a reduction of approximately 12,050 square feet of apron area. The new Airport Rescue and Fire Fighting building also displaced the General Aviation vehicle parking area. This resulted in approximately 13,500 square feet.

The operational use of commercial airlines, and the larger aircraft being utilized, resulted in a doubling of the existing Security Identification Display Area (SIDA). This resulted in a reduction of approximately 60,200 square feet of apron area for aircraft parking.

The net result of these changes is a loss of approximately 158,000 square feet of useable apron or apron-related space. It is estimated there is 556,000 square feet of actual apron pavement, but closer to 513,000 square feet of useable aircraft parking space. On busy weekends, the Airport has difficulty finding places for aircraft to park. This results in inefficient aircraft and ground equipment movements as aircraft are moved around the airfield and shuttled in and out of parking spaces. This in turn results in more fuel burn and more waiting time for crews and passengers. The Airport needs to replace the lost apron space and to improve the aircraft parking configuration.

The Airport estimates it needs to replace that lost apron area for parking and movement of aircraft to efficiently maintain the existing operations.

3 ALTERNATIVES ANALYSIS AND PROPOSED ACTION

This chapter describes the alternatives considered for the proposed projects and documents the rationale for selecting the preferred alternatives. Included are summaries of each alternative's purpose, physical characteristics, benefits, principal environmental impacts, and rationale for selecting it as preferred or eliminating it from consideration. Impact avoidance, minimization, and mitigation are also summarized. More detail on these topics may be found in other chapters of this document.

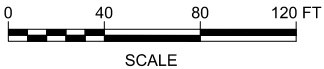
NEPA requires consideration of a No-Build Alternative for each project. The No-Build Alternatives reflect conditions as they are expected to exist in the future if the Airport does not implement the proposed Projects. The No-Build scenarios assume there will be preventive or routine maintenance activities on existing infrastructure. They also take into consideration other ongoing Airport-sponsored projects. There are currently no other ongoing infrastructure projects at the Airport.

Project locations are shown in **Figure 2-1** and the alternatives are individually shown in **Figures 3-1 through 3-27**. New impervious surface area and temporary impact areas for Priority Habitat, non-Priority Habitat, and overall are listed in **Tables 3-1, 3-2 and 3-3**, respectively.

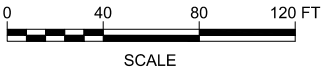
This page intentionally blank



PREVIOUSLY DISTURBED LOT 38
SCALE: 1" = 40'

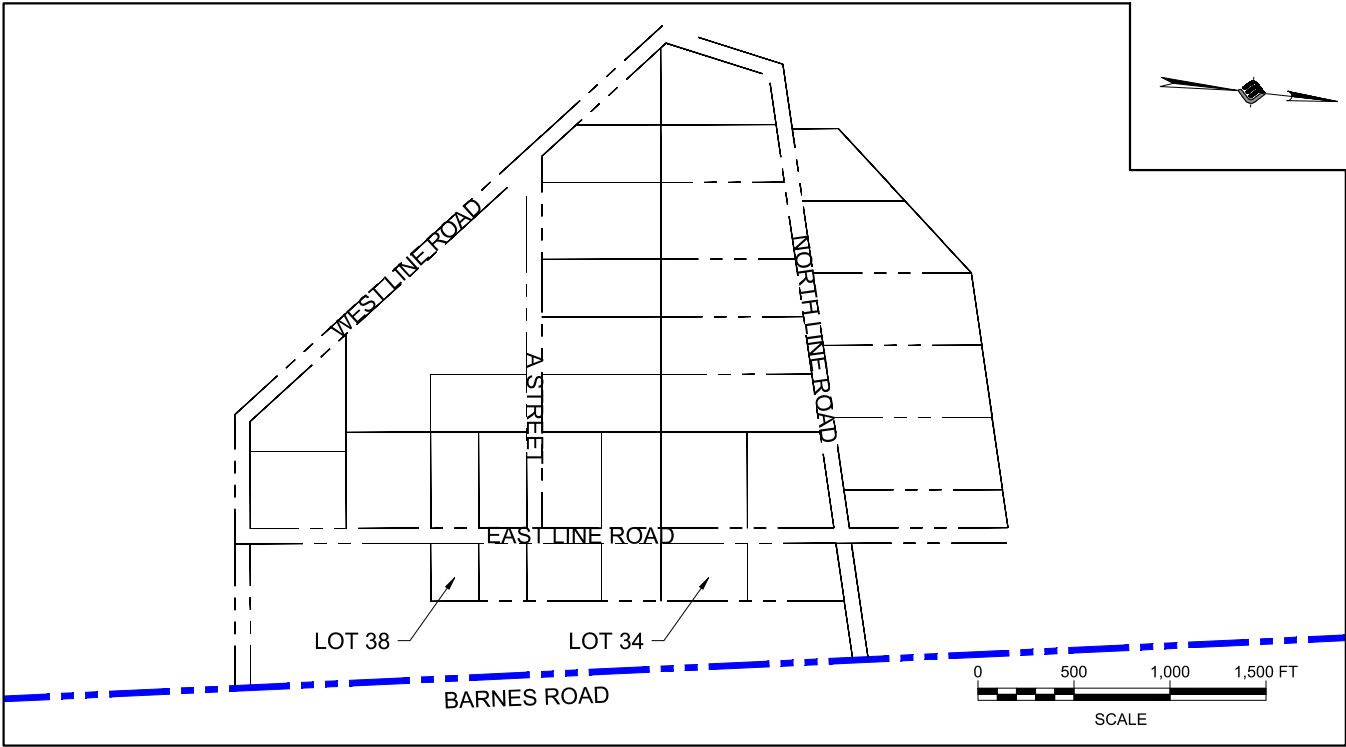


PREVIOUSLY DISTURBED LOT 34
SCALE: 1" = 40'

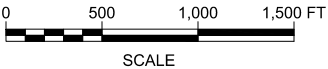


- LEGEND
- PRIORITY HABITAT
 - APPROXIMATE LIMITS OF LEASED PARCELS
 - APPROXIMATE AIRPORT PROPERTY LINE

- NOTES:
- AERIAL PHOTO TAKEN IN AUGUST, 2019 BY GEOPRO.
 - ASSUME 100% DISTURBANCE IN MAPPED PRIORITY HABITAT AREA WITHIN LOTS.



MVY BUSINESS PARK
SCALE: 1" = 500'



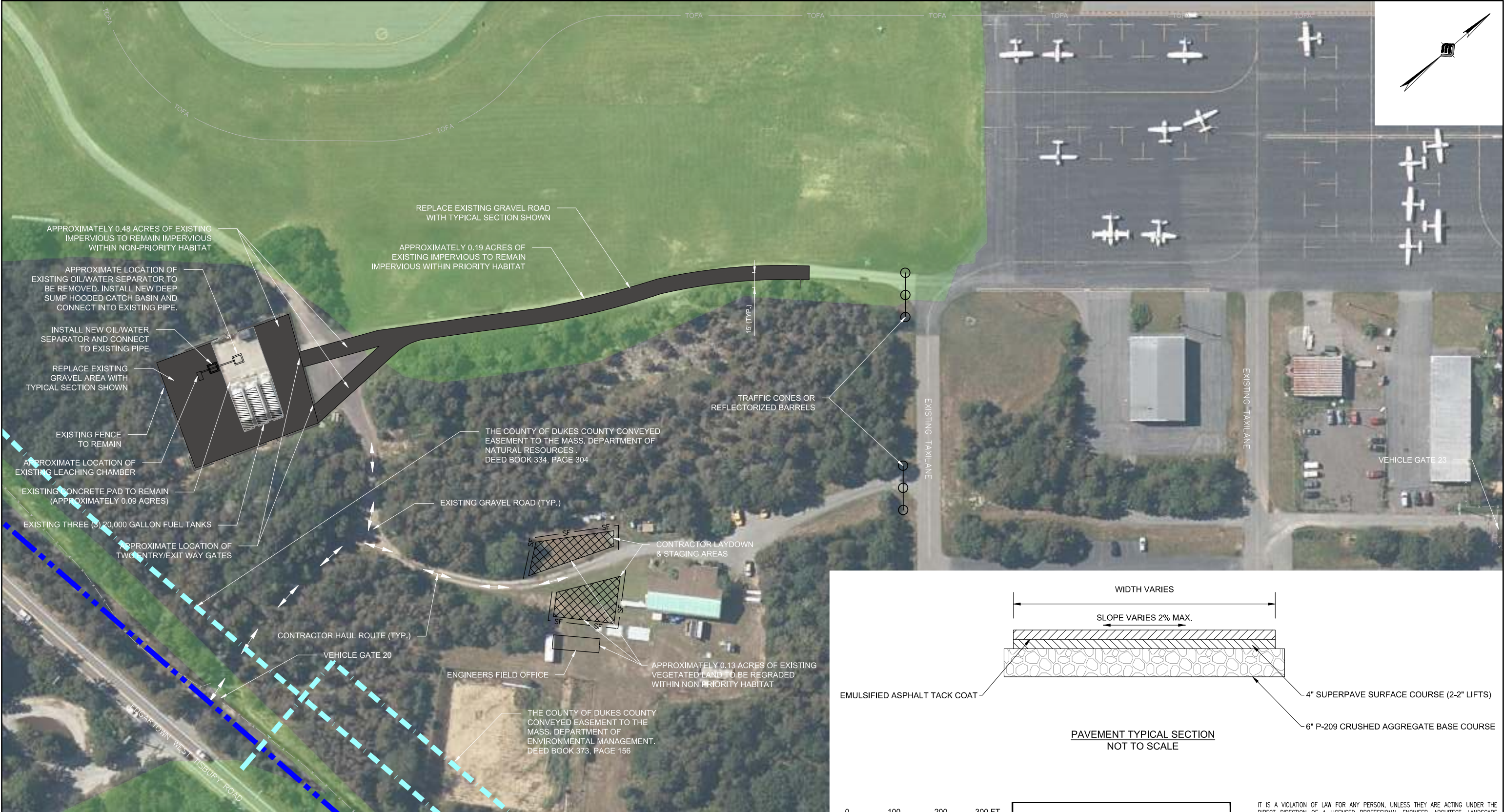
FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT
BUSINESS PARK LOTS 34 AND 38

 **McFarland Johnson**
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

SCALE: AS SHOWN	DESIGN: SRS
DRAWN: SRS	PROJECT: 18226.07
CHECKED: MTO	DATE: NOVEMBER 2020



LEGEND

PROPOSED PAVEMENT

EXISTING FENCELINE

APPROXIMATE AIRPORT PROPERTY LINE

APPROXIMATE EASEMENT LINE

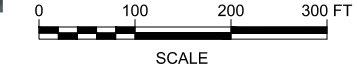
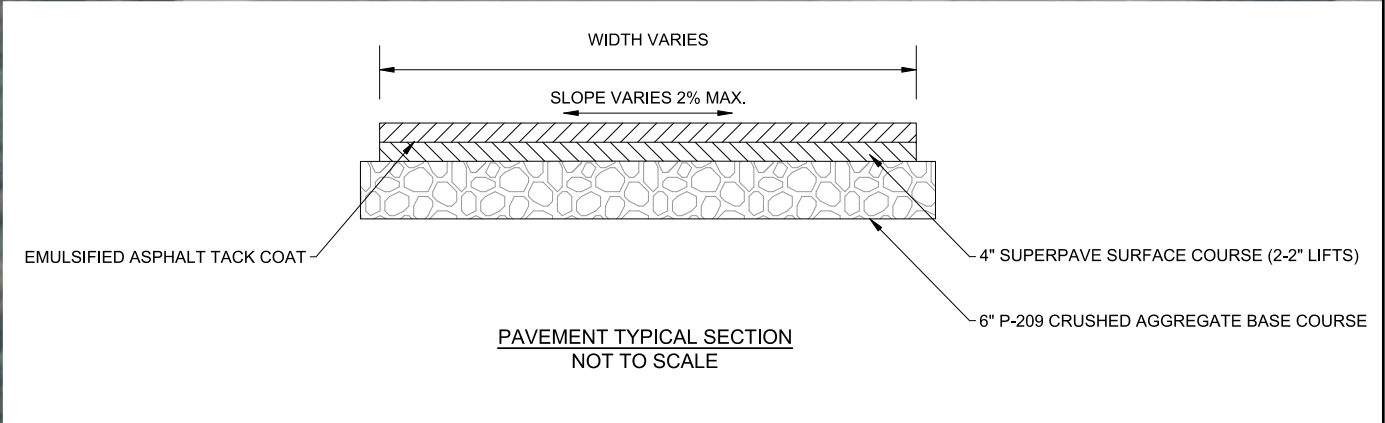
PRIORITY HABITAT

ESTIMATED HABITAT

CONTRACTOR LAYDOWN AND STAGING AREA

SILT FENCE

- NOTES:
- FUEL FARM PAD AND ACCESS ROAD LAYOUT DIGITIZED FROM AERIAL PHOTO. LOCATION ADJUSTED TO MATCH BASE PLANS PROVIDED BY OTHERS.
 - AERIAL PHOTO TAKEN IN AUGUST, 2019 BY GEOPRO.



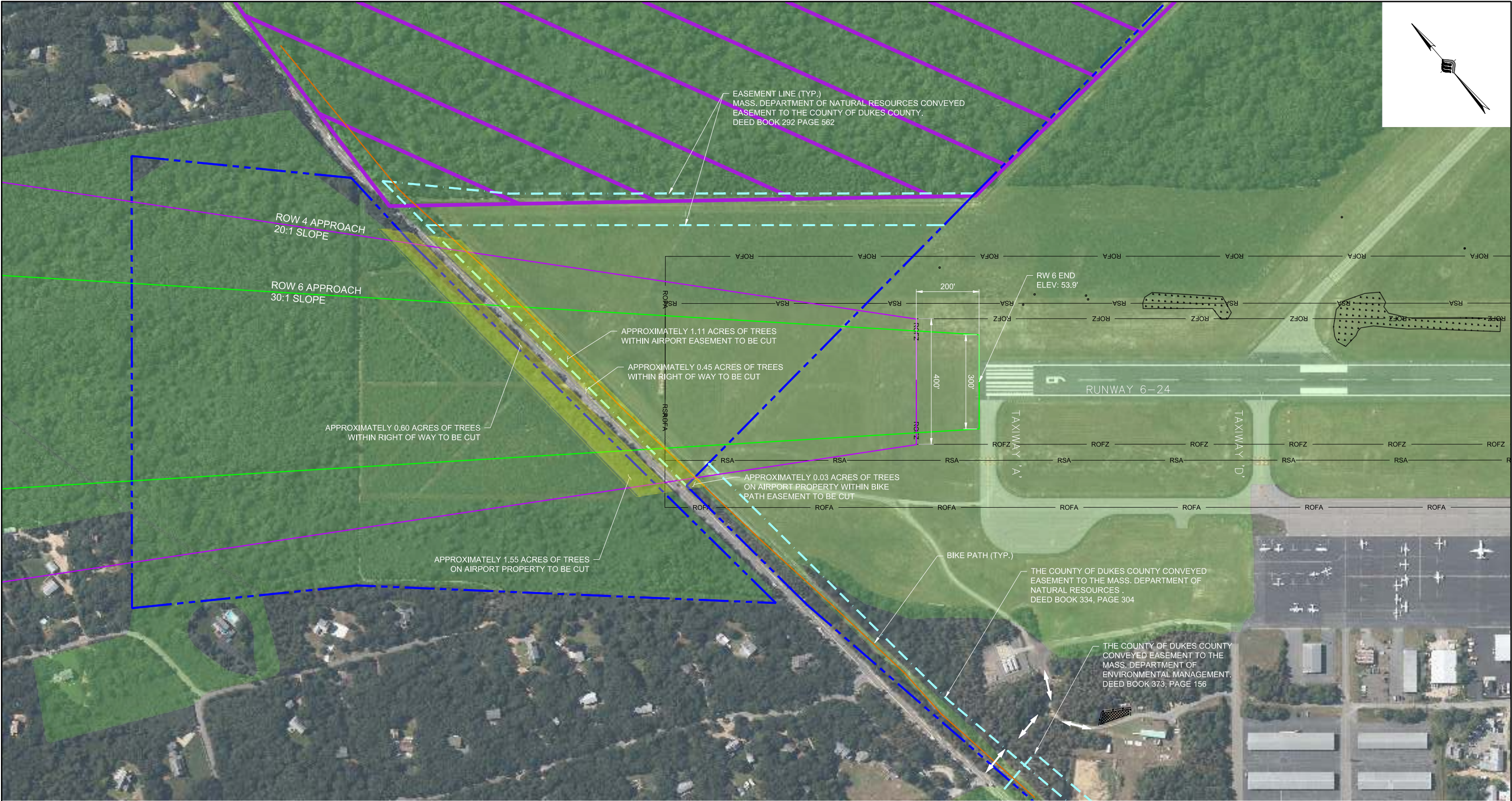
FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

				MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT		
				IMPROVE FUEL FARM ACCESS AND SAFETY		
				SCALE: 1" = 100'	DESIGN: SRS	3-3
				DRAWN: SRS	PROJECT: 18226.07	
				CHECKED: MTO	DATE: NOVEMBER 2020	



McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



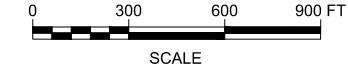
NOTES:

1. TREE PENETRATION DATA IS FROM AN AUGUST 2010 SURVEY COMPLETED BY JACOBS AND AUGUST 2019 SURVEY COMPLETED BY MCFARLAND JOHNSON.
2. TREE ELEVATIONS WERE COMPARED TO CRITICAL SURFACES OF THE RUNWAY APPROACHES TO DETERMINE CURRENT PENETRATIONS AND PENETRATIONS IN 10 YEARS. SURFACE INFORMATION IS IN FAA AC 150/5300-13A TABLE 3-2. APPROACH AND DEPARTURE STANDARDS TABLE: ROW 4, ROW 5 AND ROW 6.
3. PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITSCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.

LEGEND

- | | |
|--|--------------------------------------|
| | PROPOSED PAVEMENT - NEW CONSTRUCTION |
| | APPROXIMATE LIMIT OF DISTURBANCE |
| | TAXIWAY OBJECT FREE AREA |
| | RUNWAY SAFETY AREA |
| | RUNWAY OBJECT FREE AREA |
| | RUNWAY OBJECT FREE ZONE |
| | PROPOSED TREE REMOVAL AREA |
| | CONTRACTOR LAYDOWN AND STAGING AREA |
| | RARE PLANT LOCATIONS |

- | | |
|--|------------------------------------|
| | PROPOSED PAVEMENT - RECONSTRUCTION |
| | APPROXIMATE AIRPORT PROPERTY LINE |
| | APPROXIMATE EASEMENT LINE |
| | EXISTING BIKE PATH |
| | PRIORITY HABITAT |
| | ESTIMATED HABITAT |
| | PROPOSED HAUL ROUTE |
| | EXISTING GRAVEL ROAD |



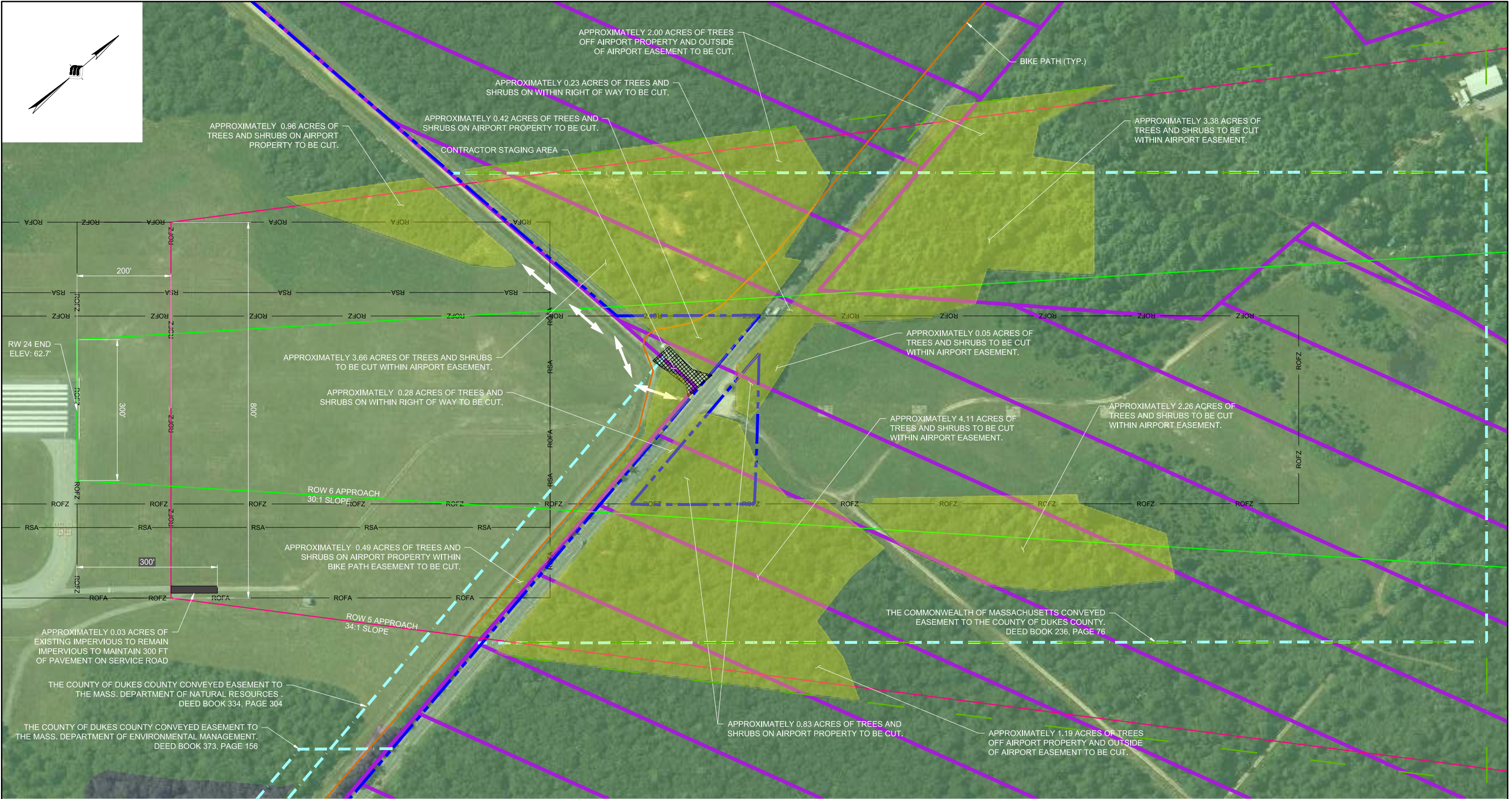
FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

**MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT
AIRSPACE VEGETATION MANAGEMENT -
RUNWAY 6**

SCALE: 1" = 300'	DESIGN: SRS	3-4
DRAWN: SRS	PROJECT: 18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	

McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



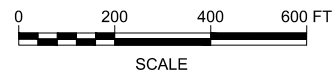
NOTES:

1. TREE PENETRATION DATA IS FROM AN AUGUST 2010 SURVEY COMPLETED BY JACOBS AND AUGUST 2019 SURVEY COMPLETED BY MCFARLAND JOHNSON.
2. TREE ELEVATIONS WERE COMPARED TO CRITICAL SURFACES OF THE RUNWAY APPROACHES TO DETERMINE CURRENT PENETRATIONS AND PENETRATIONS IN 10 YEARS. SURFACE INFORMATION IS IN FAA AC 150/5300-13A TABLE 3-2. APPROACH AND DEPARTURE STANDARDS TABLE: ROW 4, ROW 5 AND ROW 6.
3. PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITSCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.

LEGEND

- PROPOSED PAVEMENT - NEW CONSTRUCTION
- LOD APPROXIMATE LIMIT OF DISTURBANCE
- TOFA TAXIWAY OBJECT FREE AREA
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- ROFZ RUNWAY OBJECT FREE ZONE
- PROPOSED TREE REMOVAL AREA
- CONTRACTOR LAYDOWN AND STAGING AREA
- RARE PLANT LOCATIONS

- PROPOSED PAVEMENT - RECONSTRUCTION
- APPROXIMATE AIRPORT PROPERTY LINE
- APPROXIMATE EASEMENT LINE
- POTENTIAL FUTURE EASEMENT LINE
- EXISTING BIKE PATH
- PRIORITY HABITAT
- ESTIMATED HABITAT
- PROPOSED HAUL ROUTE
- EXISTING GRAVEL ROAD



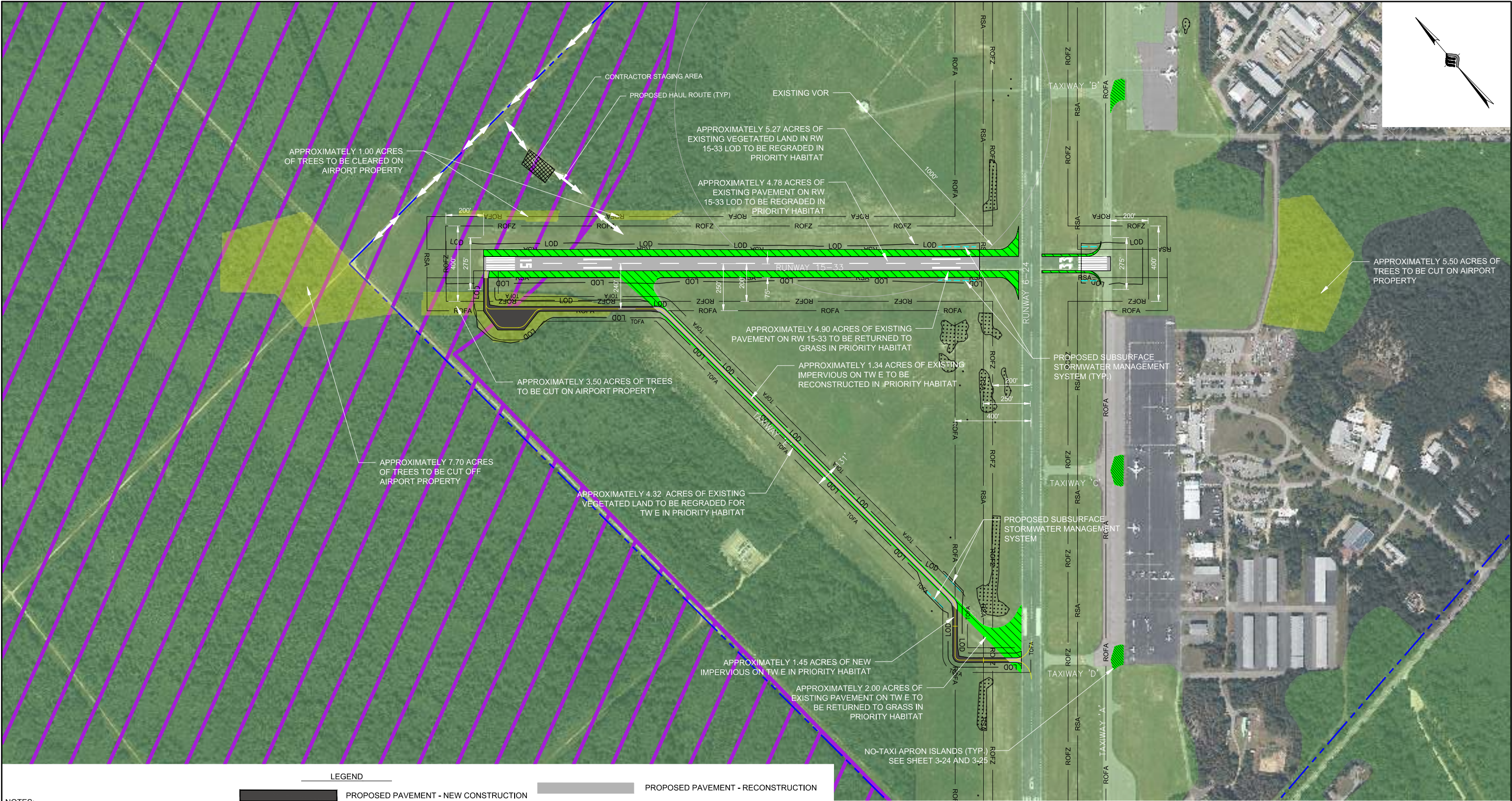
FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

**MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT
AIRSPACE VEGETATION MANAGEMENT -
RUNWAY 24**

McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

SCALE: 1" = 200'	DESIGN: SRS	3-5
DRAWN: SRS	PROJECT: 18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	



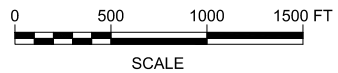
NOTES:

1. TREE PENETRATION DATA IS FROM AN AUGUST 2012 SURVEY COMPLETED BY JACOBS AND AUGUST 2019 SURVEY COMPLETED BY MCFARLAND JOHNSON.
2. TREE ELEVATIONS WERE COMPARED TO CRITICAL SURFACES OF THE RUNWAY APPROACHES TO DETERMINE CURRENT PENETRATIONS. SURFACE INFORMATION IS IN FAA AC 150/5300-13A TABLE 3-2. APPROACH AND DEPARTURE STANDARDS TABLE: ROW 4, ROW 5 AND ROW 6.
3. TW E WAS DESIGNED BASED OF AN ADG 2 AND TDG 1A, WITH A 25' WIDTH OF PAVEMENT AND 131' TOFA.
4. PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITSCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.

LEGEND

- | | |
|--|--|
| | PROPOSED PAVEMENT - NEW CONSTRUCTION |
| | APPROXIMATE LIMIT OF DISTURBANCE |
| | TAXIWAY OBJECT FREE AREA |
| | EXISTING PAVEMENT TO BECOME VEGETATED LAND |
| | RSA |
| | ROFA |
| | ROFZ |
| | PROPOSED TREE CLEARING AREA |
| | CONTRACTOR STAGING AREA |
| | RARE PLANT LOCATIONS |

- | | |
|--|------------------------------------|
| | PROPOSED PAVEMENT - RECONSTRUCTION |
| | APPROXIMATE AIRPORT PROPERTY LINE |
| | PRIORITY HABITAT |
| | ESTIMATED HABITAT |
| | PROPOSED HAUL ROUTE |
| | EXISTING GRAVEL ROAD |
| | PROPOSED STORMWATER MANAGEMENT |



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

**MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT**

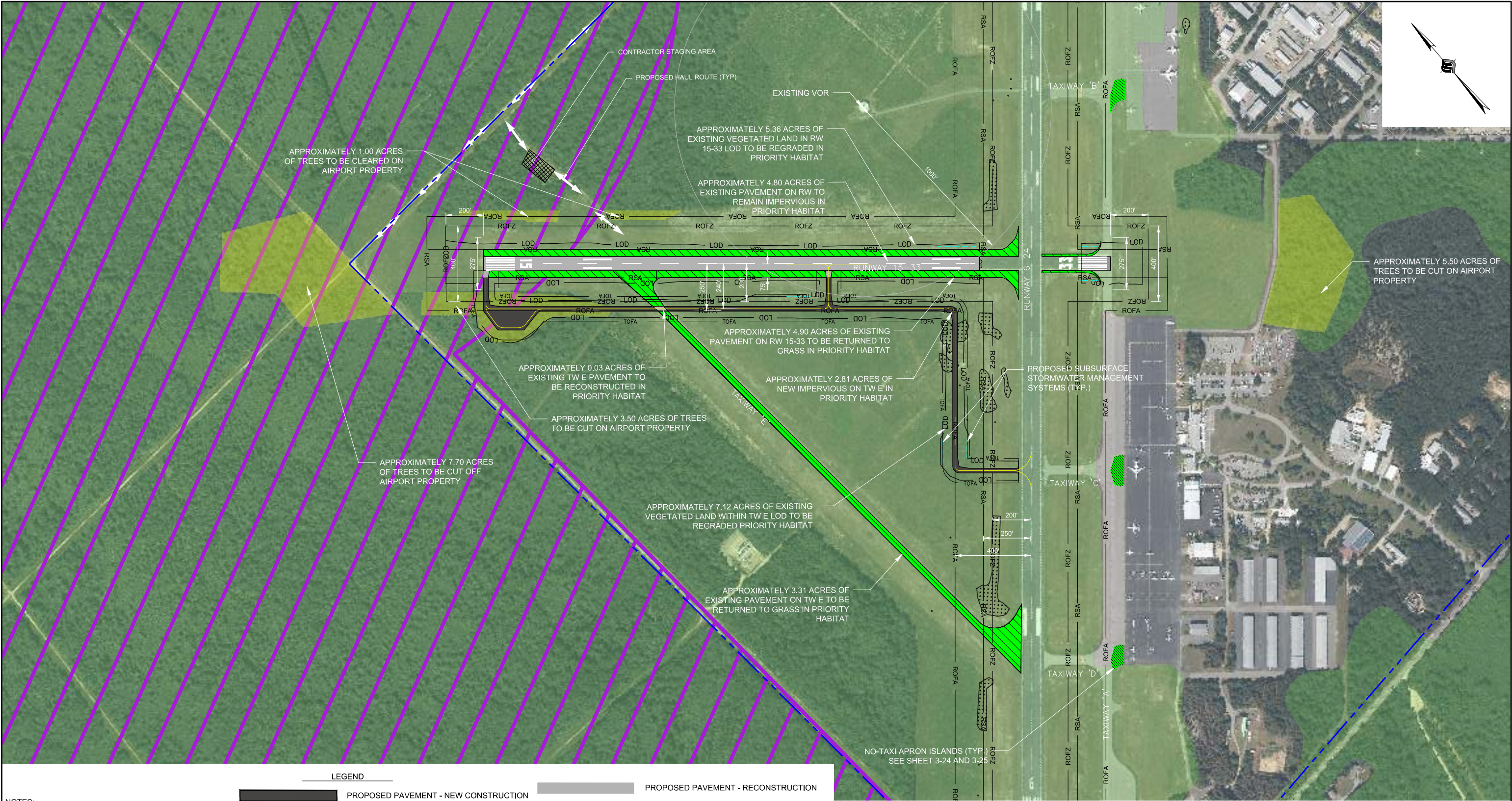
**RW15-33 AND TW E ALT 5-1A -
MAINTAIN EXISTING THRESHOLDS &
CONSTRUCT PARTIAL PARALLEL TW E**

SCALE: 1" = 500'	DESIGN: SRS	3-6
DRAWN: SRS	PROJECT: 18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	



McFarland Johnson

53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

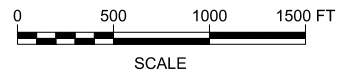


NOTES:

1. TREE PENETRATION DATA IS FROM AN AUGUST 2012 SURVEY COMPLETED BY JACOBS AND AUGUST 2019 SURVEY COMPLETED BY MCFARLAND JOHNSON.
2. TREE ELEVATIONS WERE COMPARED TO CRITICAL SURFACES OF THE RUNWAY APPROACHES TO DETERMINE CURRENT PENETRATIONS. SURFACE INFORMATION IS IN FAA AC 150/5300-13A TABLE 3-2. APPROACH AND DEPARTURE STANDARDS TABLE: ROW 4, ROW 5 AND ROW 6.
3. TW E WAS DESIGNED BASED OF AN ADG 2 AND TDG 1A, WITH A 25' WIDTH OF PAVEMENT AND 131' TOFA.
4. PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITSCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.

LEGEND

	PROPOSED PAVEMENT - NEW CONSTRUCTION		PROPOSED PAVEMENT - RECONSTRUCTION
	APPROXIMATE LIMIT OF DISTURBANCE		APPROXIMATE AIRPORT PROPERTY LINE
	TAXIWAY OBJECT FREE AREA		PRIORITY HABITAT
	EXISTING PAVEMENT TO BECOME VEGETATED LAND		ESTIMATED HABITAT
	RSA		PROPOSED HAUL ROUTE
	ROFA		EXISTING GRAVEL ROAD
	ROFZ		PROPOSED STORMWATER MANAGEMENT
	PROPOSED TREE CLEARING AREA		
	CONTRACTOR STAGING AREA		
	RARE PLANT LOCATIONS		

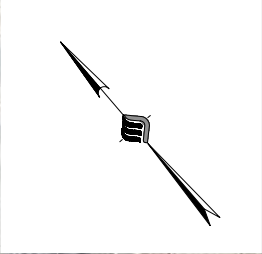


FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.


















MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT			
RW15-33 AND TW E ALT 5-1B - MAINTAIN EXISTING THRESHOLDS & CONSTRUCT SOUTH PARALLEL TW E			
SCALE: 1" = 500'	DESIGN: SRS	3-7	
DRAWN: SRS	PROJECT:18226.07		
CHECKED: MTO	DATE: NOVEMBER 2020		

McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



1. TREE PENETRATION DATA IS FROM AN AUGUST 2012 SURVEY COMPLETED BY JACOBS AND AUGUST 2019 SURVEY COMPLETED BY MCFARLAND JOHNSON.
2. TREE ELEVATIONS WERE COMPARED TO CRITICAL SURFACES OF THE RUNWAY APPROACHES TO DETERMINE CURRENT PENETRATIONS. SURFACE INFORMATION IS IN FAA AC 150/5300-13A TABLE 3-2. APPROACH AND DEPARTURE STANDARDS TABLE: ROW 4, ROW 5 AND ROW 6.
3. TW E WAS DESIGNED BASED OF AN ADG 2 AND TDG 1A, WITH A 25' WIDTH OF PAVEMENT AND 131' TOFA.
4. PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITSC ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.


LEGEND

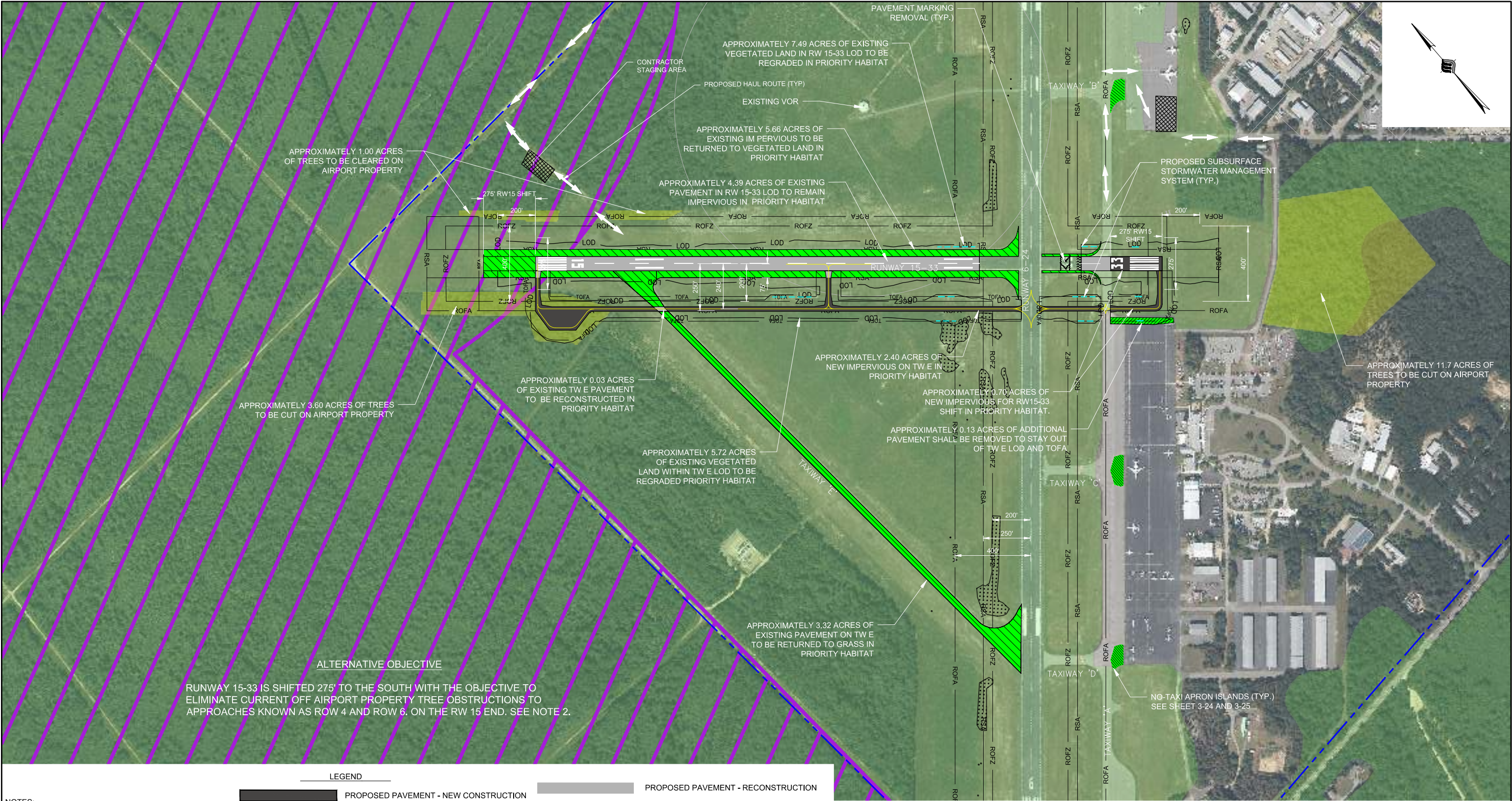
	PROPOSED PAVEMENT - NEW CONSTRUCTION		PROPOSED PAVEMENT - RECONSTRUCTION
	APPROXIMATE LIMIT OF DISTURBANCE		APPROXIMATE AIRPORT PROPERTY LINE
	TAXIWAY OBJECT FREE AREA		PRIORITY HABITAT
	EXISTING PAVEMENT TO BECOME VEGETATED LAND		ESTIMATED HABITAT
	RUNWAY SAFETY AREA		PROPOSED HAUL ROUTE
	RUNWAY OBJECT FREE AREA		EXISTING GRAVEL ROAD
	RUNWAY OBJECT FREE ZONE		PROPOSED STORMWATER MANAGEMENT
	PROPOSED TREE CLEARING AREA		
	CONTRACTOR STAGING AREA		
	RARE PLANT LOCATIONS		

A horizontal scale bar with tick marks at 0, 500, 1000, and 1500 FT. The bar is divided into segments: the first 500 feet is alternating black and white squares, and the remaining 1000 feet is solid black.

FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

					MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS
					ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT
REV/	DATE	DESCRIPTION	BY	RW15-33 AND TW E ALT 5-2 - MAINTAIN EXISTING THRESHOLDS, RAISE RW 15 END & CONSTRUCT FULL PARALLEL TW E	
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				SCALE: 1" = 500'	DESIGN: SRS
				DRAWN: SRS	PROJECT:18226.07
				CHECKED: MTO	DATE: NOVEMBER 2020
				3-10	

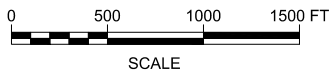


NOTES:

1. TREE PENETRATION DATA IS FROM AN AUGUST 2012 SURVEY COMPLETED BY JACOBS AND AUGUST 2019 SURVEY COMPLETED BY MCFARLAND JOHNSON.
2. TREE ELEVATIONS WERE COMPARED TO CRITICAL SURFACES OF THE RUNWAY APPROACHES TO DETERMINE CURRENT PENETRATIONS. SURFACE INFORMATION IS IN FAA AC 150/5300-13A TABLE 3-2. APPROACH AND DEPARTURE STANDARDS TABLE: ROW 4, ROW 5 AND ROW 6.
3. TW E WAS DESIGNED BASED OF AN ADG 2 AND TDG 1A, WITH A 25' WIDTH OF PAVEMENT AND 131' TOFA.
4. PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITSCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.

LEGEND

	PROPOSED PAVEMENT - NEW CONSTRUCTION		PROPOSED PAVEMENT - RECONSTRUCTION
	LOD		APPROXIMATE AIRPORT PROPERTY LINE
	TOFA		PRIORITY HABITAT
	EXISTING PAVEMENT TO BECOME VEGETATED LAND		ESTIMATED HABITAT
	RSA		PROPOSED HAUL ROUTE
	ROFA		EXISTING GRAVEL ROAD
	ROFZ		PROPOSED STORMWATER MANAGEMENT
	PROPOSED TREE CLEARING AREA		
	CONTRACTOR STAGING AREA		
	RARE PLANT LOCATIONS		

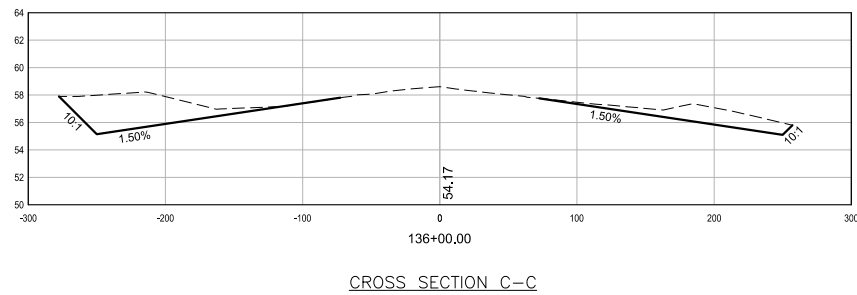
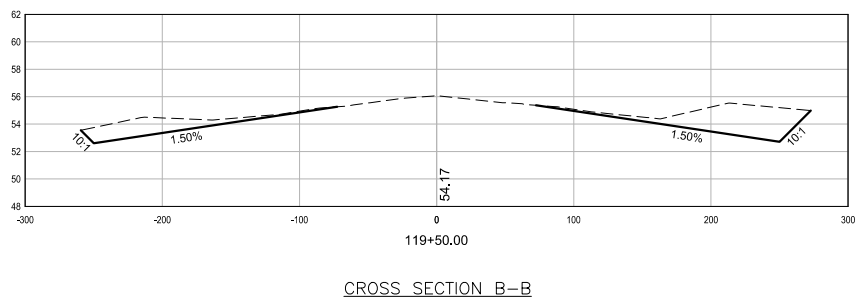
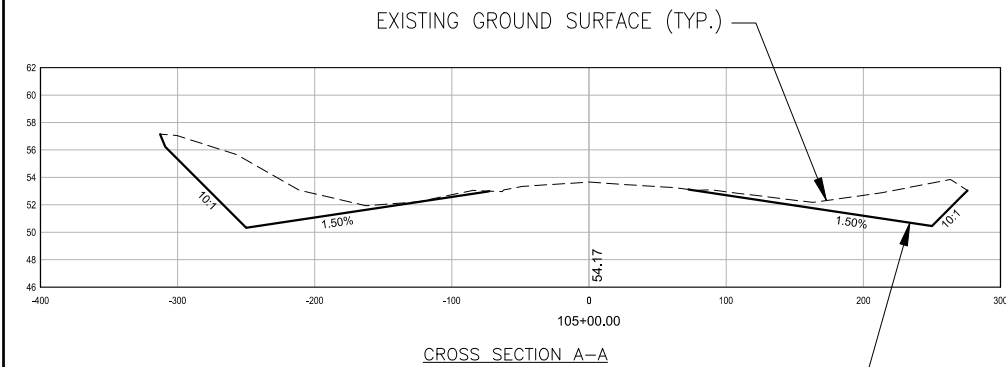
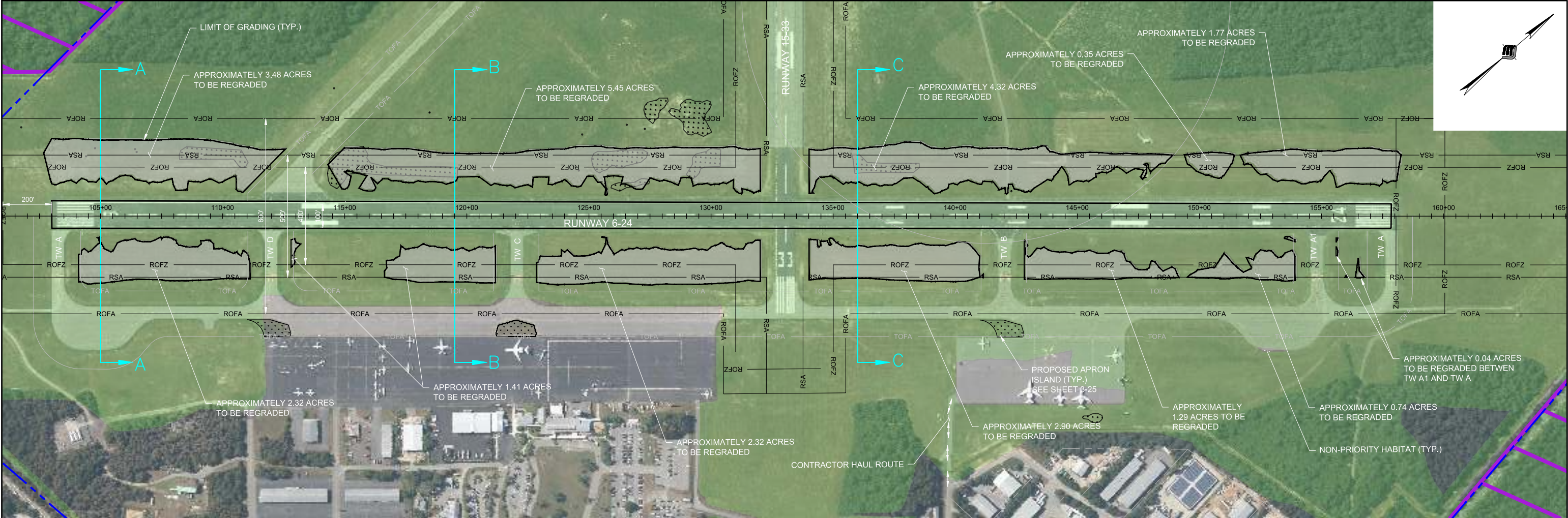


FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT			
RW15-33 AND TW E ALT 5-4 - SHIFT RW15-33 275' & CONSTRUCT FULL PARALLEL TW E			
SCALE: 1" = 500'	DESIGN: SRS	3-12	
DRAWN: SRS	PROJECT: 18226.07		
CHECKED: MTO	DATE: NOVEMBER 2020		

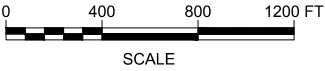
McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



LEGEND

- ESTIMATED HABITAT
- LIMIT OF TEMPORARY DISTURBANCE
- RSA RUNWAY SAFETY AREA
- ROFZ RUNWAY OBJECT FREE ZONE
- ROFA RUNWAY OBJECT FREE AREA
- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- RARE PLANT LOCATIONS

- NOTES:**
1. SURVEY DATA IS A COMBINATION OF A SURVEY FROM BRYANT ASSOCIATES DATED FEBRUARY 2018 AND GIS DATA FROM THE USGS GIS WEBSITE.
 2. RUNWAY SAFETY AREA IS BASED ON AN AIRPORT DESIGN GROUP OF C-III. THE SAFETY AREA TOTAL WIDTH IS 500'.
 3. FAA AC 150/5300-13A WAS USED TO DETERMINE THE GRADES OF THE RUNWAY SAFETY AREA.
 4. RUNWAY SAFETY ELEVATIONS WERE DETERMINED USING EXISTING CENTERLINE ELEVATIONS EVERY 50'.

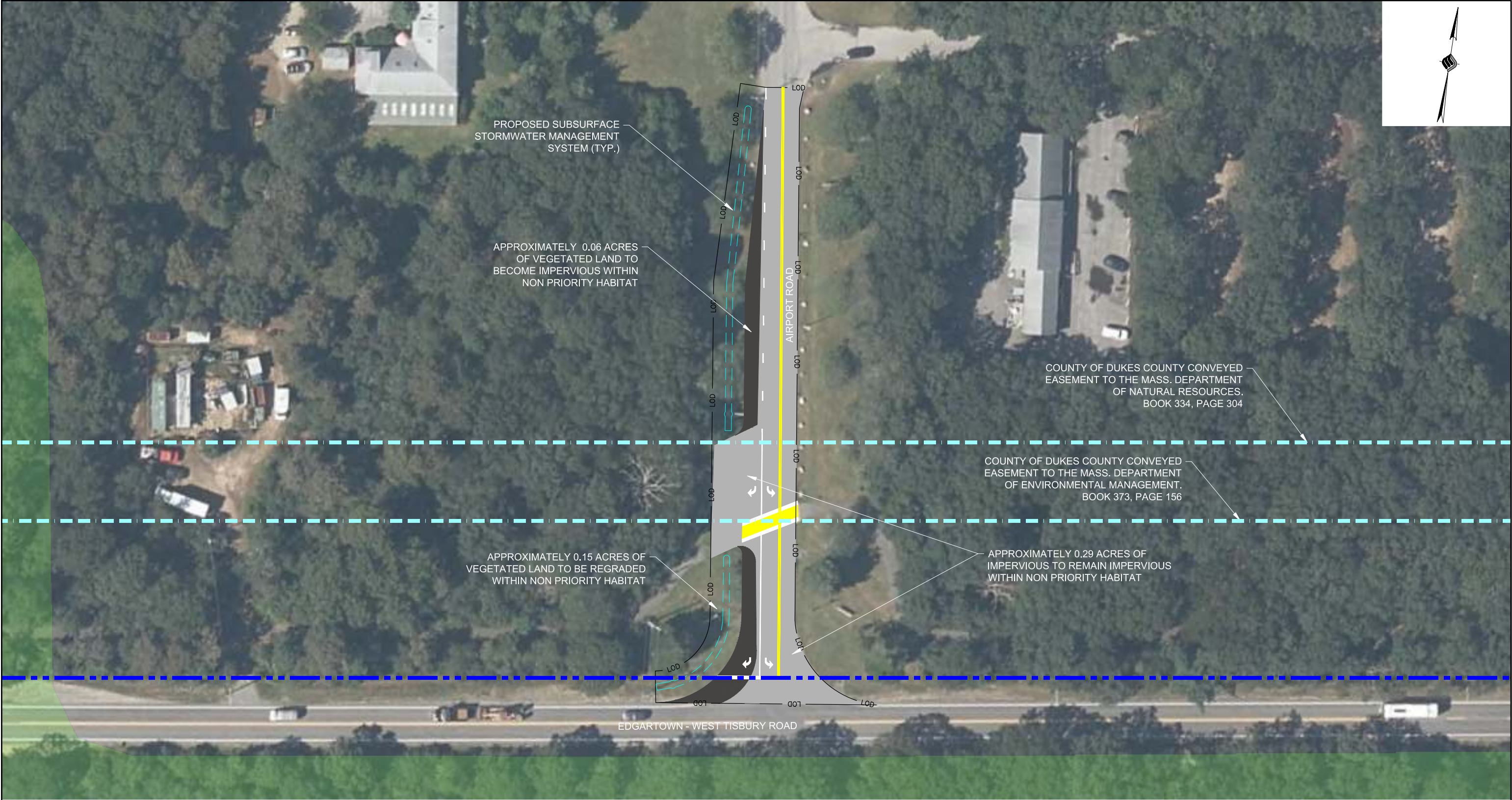


FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

MARtha's VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT			
REGRADE RUNWAY 6-24 SIDE SAFETY AREAS			
SCALE: AS SHOWN	DESIGN: SRS	3-14 1 ----	
DRAWN: SRS	PROJECT: 18226.07		
CHECKED: MTO	DATE: NOVEMBER 2020		

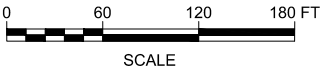


LEGEND

- LOD APPROXIMATE LIMIT OF DISTURBANCE
- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- PROPOSED PAVEMENT – NEW CONSTRUCTION
- PROPOSED PAVEMENT – RECONSTRUCTION
- APPROXIMATE DEPARTMENT OF CONSERVATION EASEMENT LINE
- PROPOSED STORMWATER MANAGEMENT

NOTES:

- PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.



FINAL EIR/EA

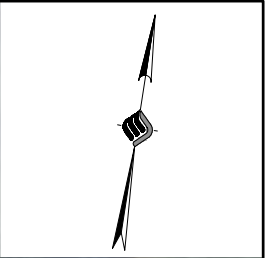
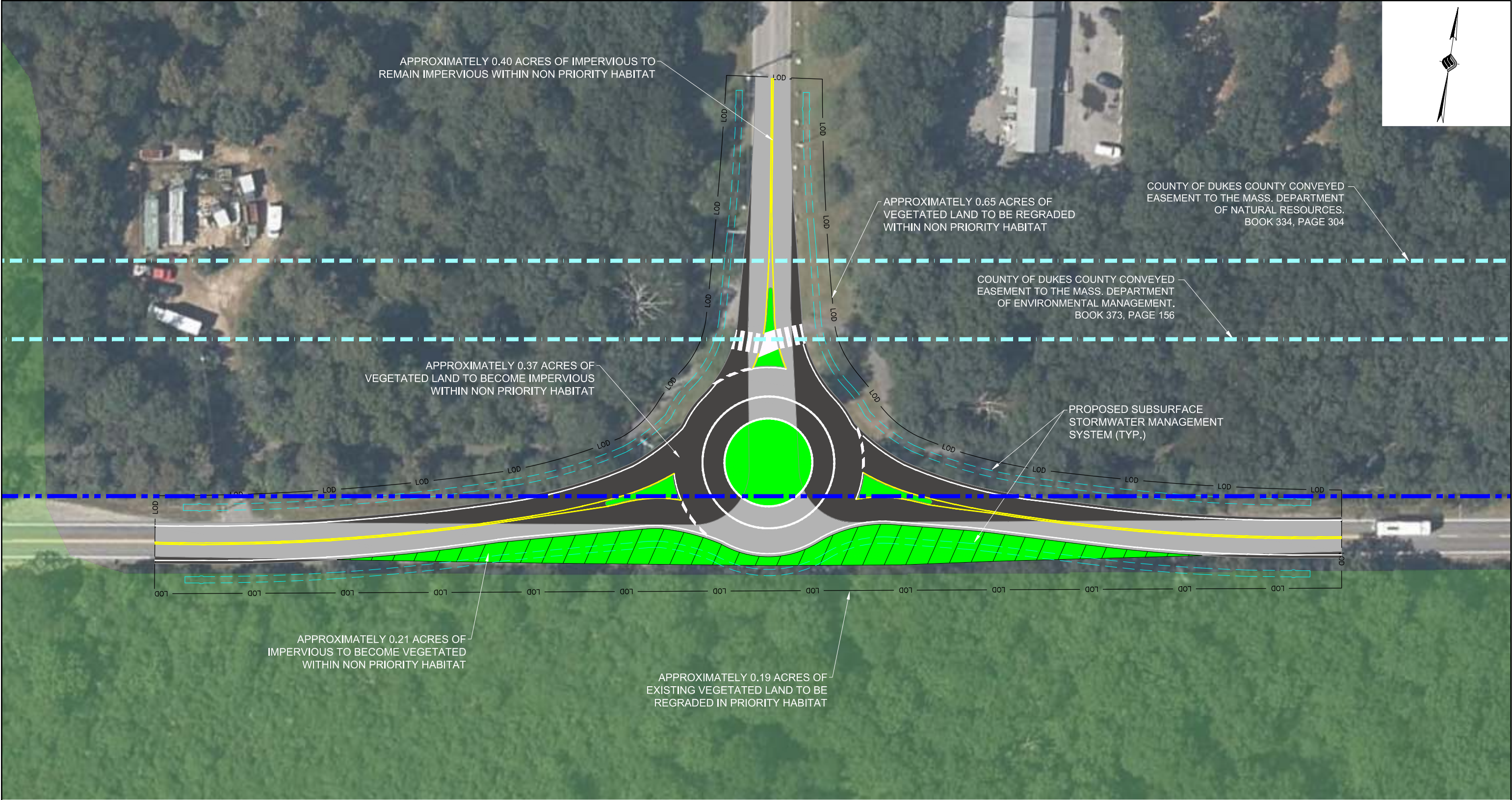
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT

ACCESS ROAD ALT 8-1 -
RIGHT TURN LANE



SCALE: 1" = 60'	DESIGN: SRS	3-15
DRAWN: RHL	PROJECT:18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	



LEGEND	
	LOD APPROXIMATE LIMIT OF DISTURBANCE
	APPROXIMATE AIRPORT PROPERTY LINE
	PRIORITY HABITAT
	PROPOSED PAVEMENT – NEW CONSTRUCTION
	PROPOSED PAVEMENT – RECONSTRUCTION
	EXISTING PAVEMENT TO BECOME VEGETATED LAND
	APPROXIMATE DEPARTMENT OF CONSERVATION RECREATION EASEMENT LINE
	PROPOSED LANDSCAPING
	PROPOSED STORMWATER MANAGEMENT


NOTES:

1. PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.



FINAL EIR/EA

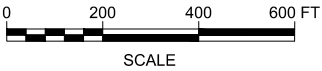
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

					MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT	
	REV	DATE	DESCRIPTION	BY	ACCESS ROAD ALT 8-2 - ROUNDBOUT	
	<div><div>McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301</div></div>					
				SCALE: 1" = 60'	DESIGN: SRS	3-16
				DRAWN: RHL	PROJECT:18226.07	
				CHECKED: MTO	DATE: NOVEMBER 2020	




- LEGEND**
- LOD — APPROXIMATE LIMIT OF DISTURBANCE
 - — — — — APPROXIMATE AIRPORT PROPERTY LINE
 - — — — — PRIORITY HABITAT
 - — — — — PROPOSED PAVEMENT — NEW CONSTRUCTION
 - — — — — APPROXIMATE DEPARTMENT OF CONSERVATION RECREATION EASEMENT LINE
 - — — — — PROPOSED STORMWATER MANAGEMENT

- NOTES:**
- PROPERTY BOUNDARIES AND INFORMATION PROVIDED BY NITCH ENGINEERING BOUNDARY SURVEY DATED AUGUST 2013.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

					MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT		
	REV	DATE	DESCRIPTION	BY	ACCESS ROAD ALT 8-3 - CONNECTOR ROAD		
	<div>McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301</div>						
SCALE: 1" = 200'		DESIGN: SRS		3-17			
DRAWN: RHL		PROJECT:18226.07					
CHECKED: MTO		DATE: NOVEMBER 2020					

Need

/ summary of approaches

a. maintain and surgically improve



b. reconfigure and improve



c. rebuild



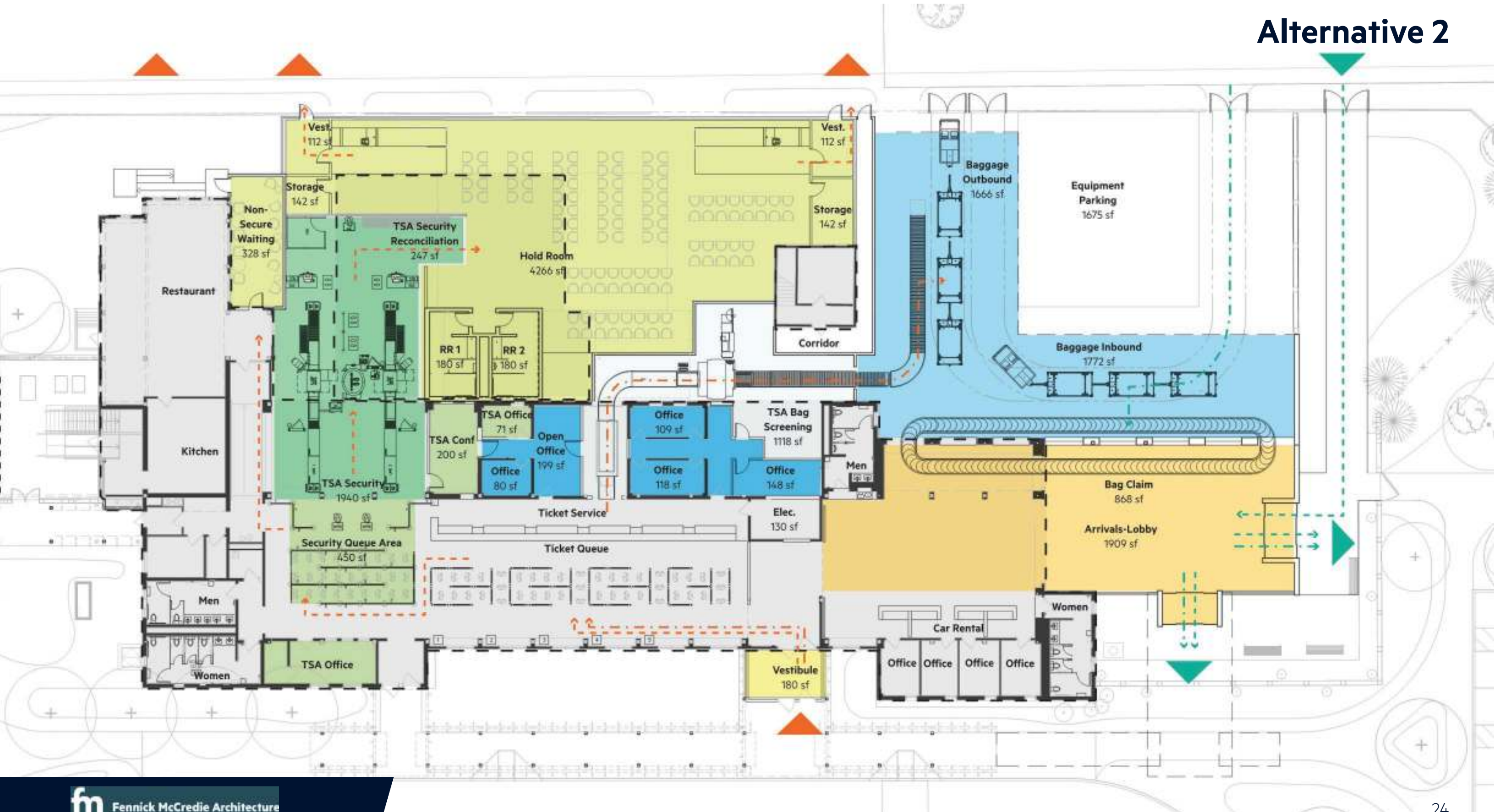
key

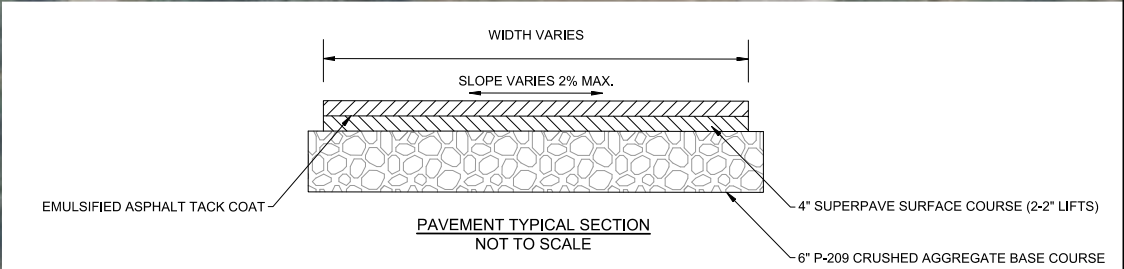
- existing with maintenance upgrades
- new and more functional space

Alternative 1



Alternative 2



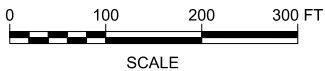


LEGEND

- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- EXISTING PAVEMENT TO BECOME VEGETATED LAND
- PROPOSED PAVEMENT – NEW CONSTRUCTION
- ROFA — RUNWAY OBJECT FREE AREA
- TOFA — TAXIWAY OBJECT FREE AREA
- LOD — APPROXIMATE LIMIT OF DISTURBANCE
- PROPOSED CENTERLINE

- CONTRACTOR LAYDOWN AND STAGING AREA
- PROPOSED STORMWATER MANAGEMENT
- SILT FENCE
- PROPOSED HAUL ROUTE

NOTES:
1. AERIAL PHOTO TAKEN IN AUGUST, 2019 BY GEOPRO.



FINAL EIR/EA

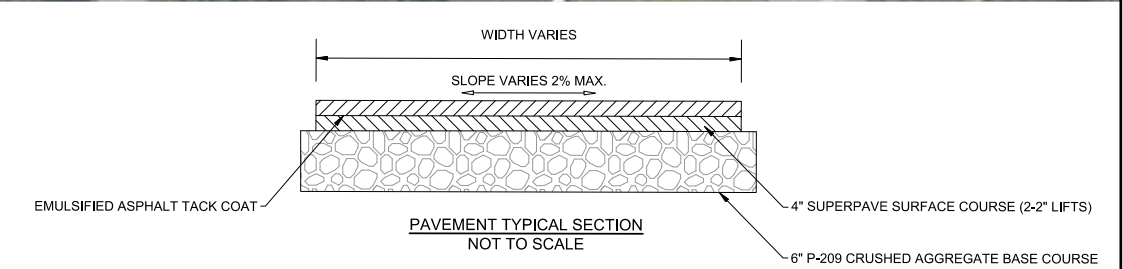
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT

IMPROVE AIRCRAFT PARKING &
MOVEMENT AREAS ALT 9-1A -
PAVE TRANSIENT TURF TIE-DOWN AREA

SCALE: 1" = 100'	DESIGN: SRS	3-22
DRAWN: SRS	PROJECT: 18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	

McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

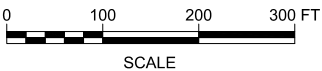


LEGEND

- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- EXISTING PAVEMENT TO BECOME VEGETATED LAND
- PROPOSED PAVEMENT – NEW CONSTRUCTION
- ROFA – RUNWAY OBJECT FREE AREA
- TOFA – TAXIWAY OBJECT FREE AREA
- LOD – APPROXIMATE LIMIT OF DISTURBANCE
- PROPOSED CENTERLINE

- CONTRACTOR LAYDOWN AND STAGING AREA
- PROPOSED STORMWATER MANAGEMENT
- SILT FENCE
- PROPOSED HAUL ROUTE

NOTES:
1. AERIAL PHOTO TAKEN IN AUGUST, 2019 BY GEOPRO.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT

IMPROVE AIRCRAFT PARKING & MOVEMENT AREAS ALT 9-1B - PAVEMENT TIE-DOWN AREA

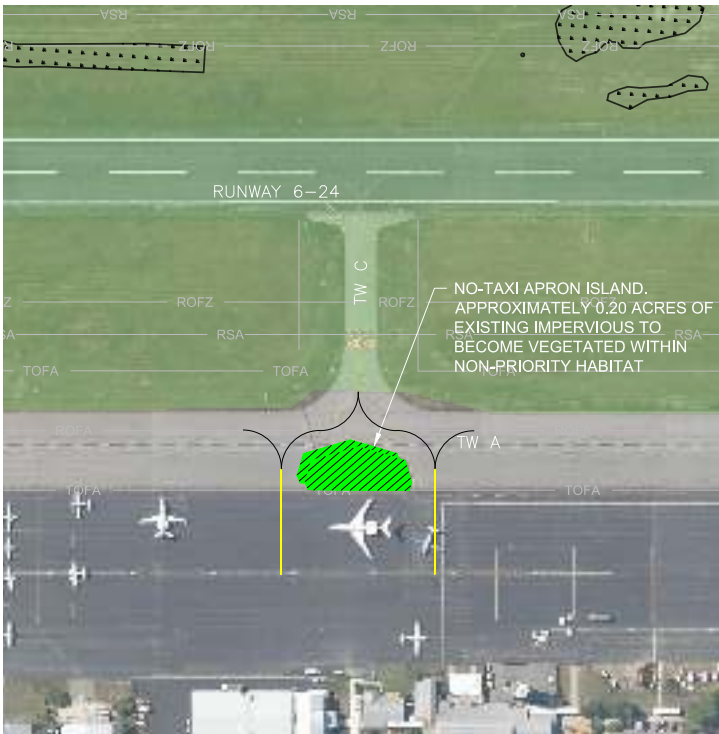
SCALE: 1" = 100'	DESIGN: SRS	3-23
DRAWN: SRS	PROJECT: 18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	



McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



NO-TAXI APRON ISLAND AT TW D
SCALE: 1" = 300'



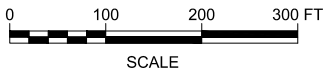
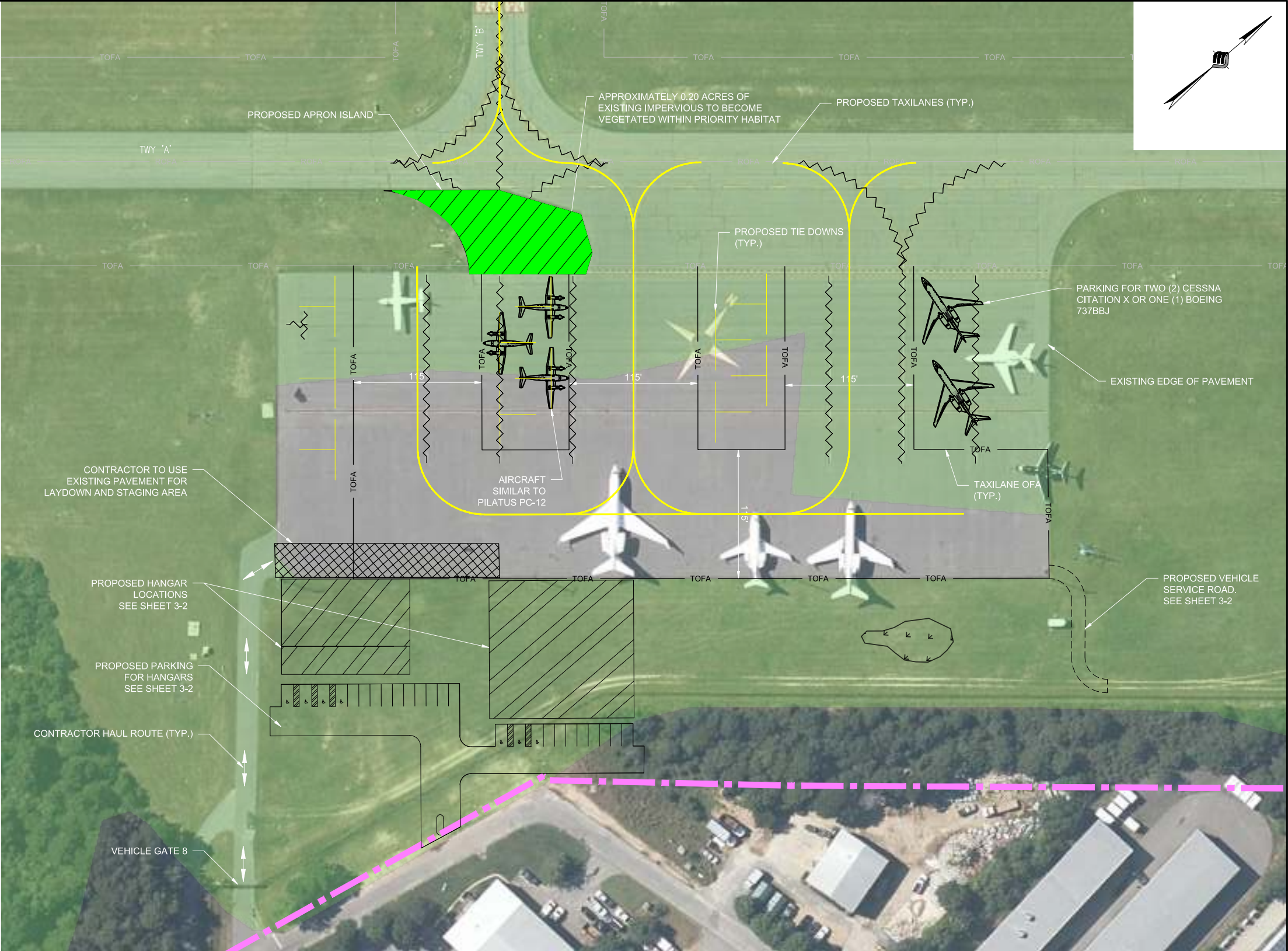
NO-TAXI APRON ISLAND AT TW C
SCALE: 1" = 300'

LEGEND

- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- EXISTING PAVEMENT TO BECOME VEGETATED LAND
- PROPOSED PAVEMENT – NEW CONSTRUCTION
- PROPOSED PAVEMENT – RECONSTRUCTION
- ROFA – RUNWAY OBJECT FREE AREA
- TOFA – PROPOSED TAXIWAY OBJECT FREE AREA
- LOD – APPROXIMATE LIMIT OF DISTURBANCE

- PROPOSED CENTERLINE
- PAVEMENT MARKING REMOVAL
- PROPOSED BUILDING
- CONTRACTOR LAYDOWN AND STAGING AREA
- LAND RELEASE BOUNDARY

- NOTES:
- AIRCRAFT PARKING AND MOVEMENT AREA LAYOUT DIGITIZED FROM AERIAL PHOTO. LOCATION ADJUSTED TO MATCH BASE PLAN PROVIDED BY OTHERS.
 - AERIAL PHOTO TAKEN IN AUGUST, 2019 BY GEOPRO.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT

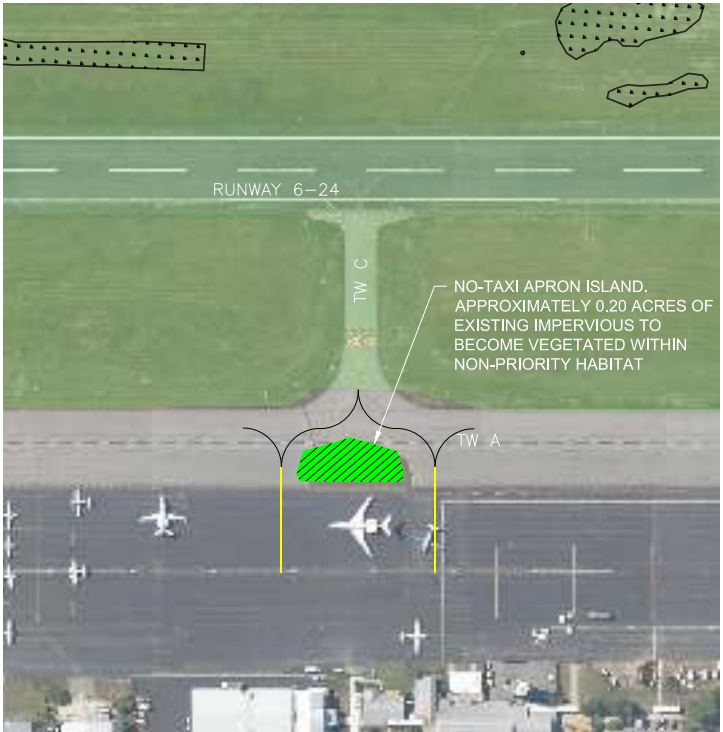
IMPROVE AIRCRAFT PARKING &
MOVEMENT AREAS ALT 9-2A
-RECONFIGURE SOUTHEAST RAMP

SCALE: AS SHOWN	DESIGN: SRS	3-24
DRAWN: SRS	PROJECT:18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	

 **McFarland Johnson**
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



NO-TAXI APRON ISLAND AT TW D
SCALE: 1" = 300'



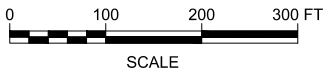
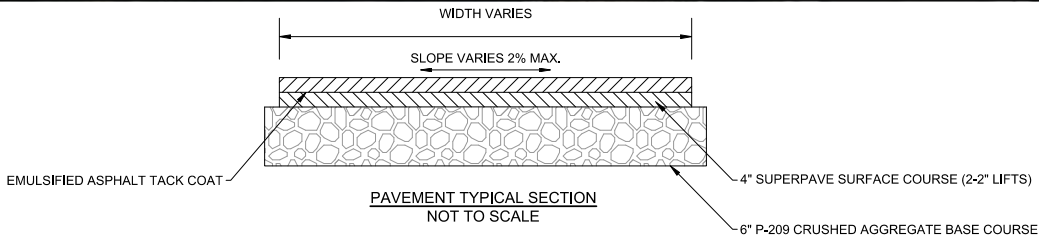
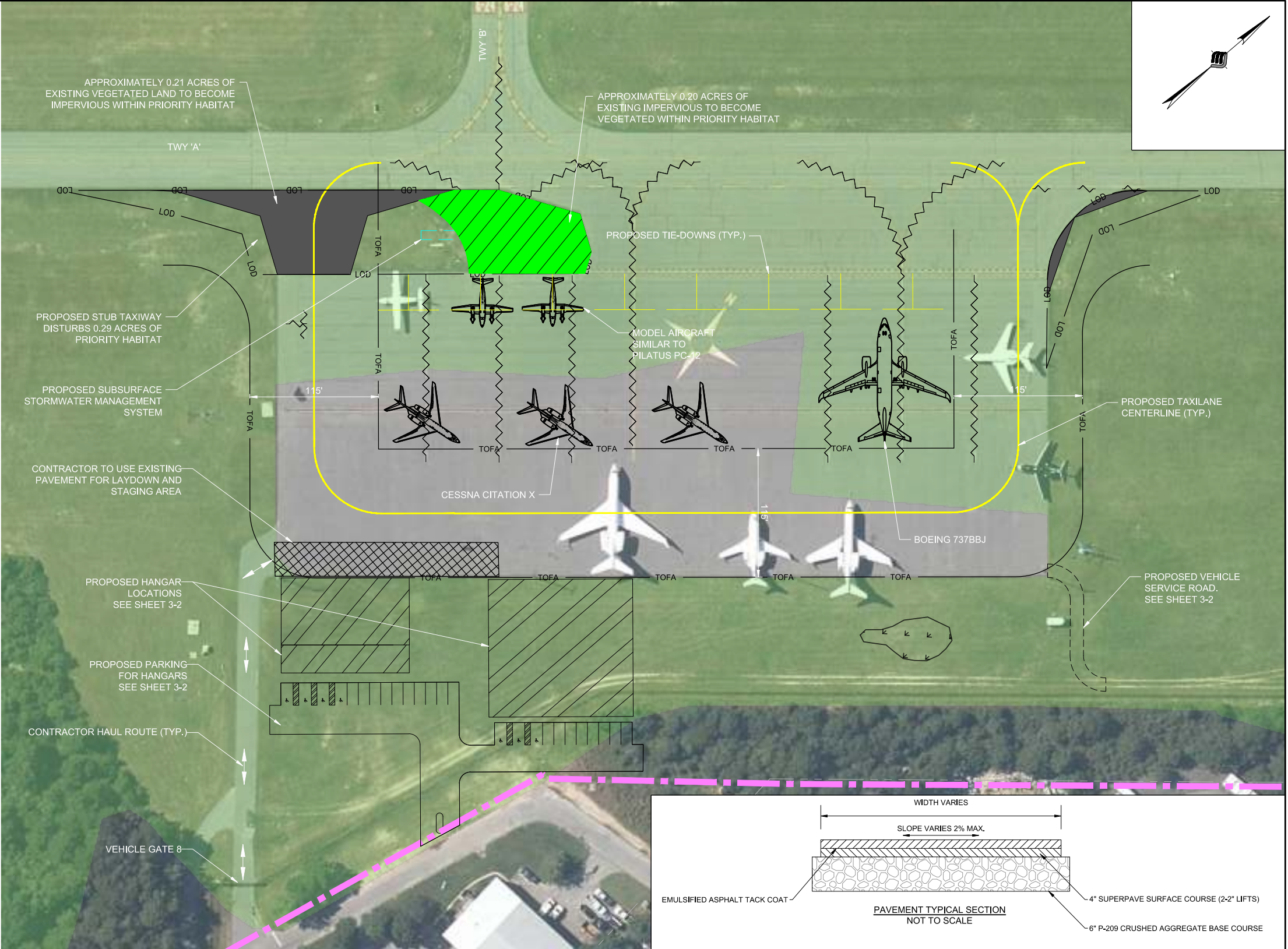
NO-TAXI APRON ISLAND AT TW C
SCALE: 1" = 300'

LEGEND

- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- EXISTING PAVEMENT TO BECOME VEGETATED LAND
- PROPOSED PAVEMENT - NEW CONSTRUCTION
- PROPOSED PAVEMENT - RECONSTRUCTION
- ROFA - RUNWAY OBJECT FREE AREA
- TOFA - PROPOSED TAXIWAY OBJECT FREE AREA
- LOD - APPROXIMATE LIMIT OF DISTURBANCE

- PROPOSED CENTERLINE
- PAVEMENT MARKING REMOVAL
- PROPOSED BUILDING
- CONTRACTOR LAYDOWN AND STAGING AREA
- LAND RELEASE BOUNDARY

- NOTES:
- AIRCRAFT PARKING AND MOVEMENT AREA LAYOUT DIGITIZED FROM AERIAL PHOTO. LOCATION ADJUSTED TO MATCH BASE PLAN PROVIDED BY OTHERS.
 - AERIAL PHOTO TAKEN IN AUGUST, 2019 BY GEOPRO.



FINAL EIR/EA

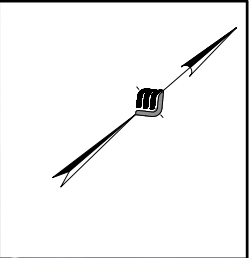
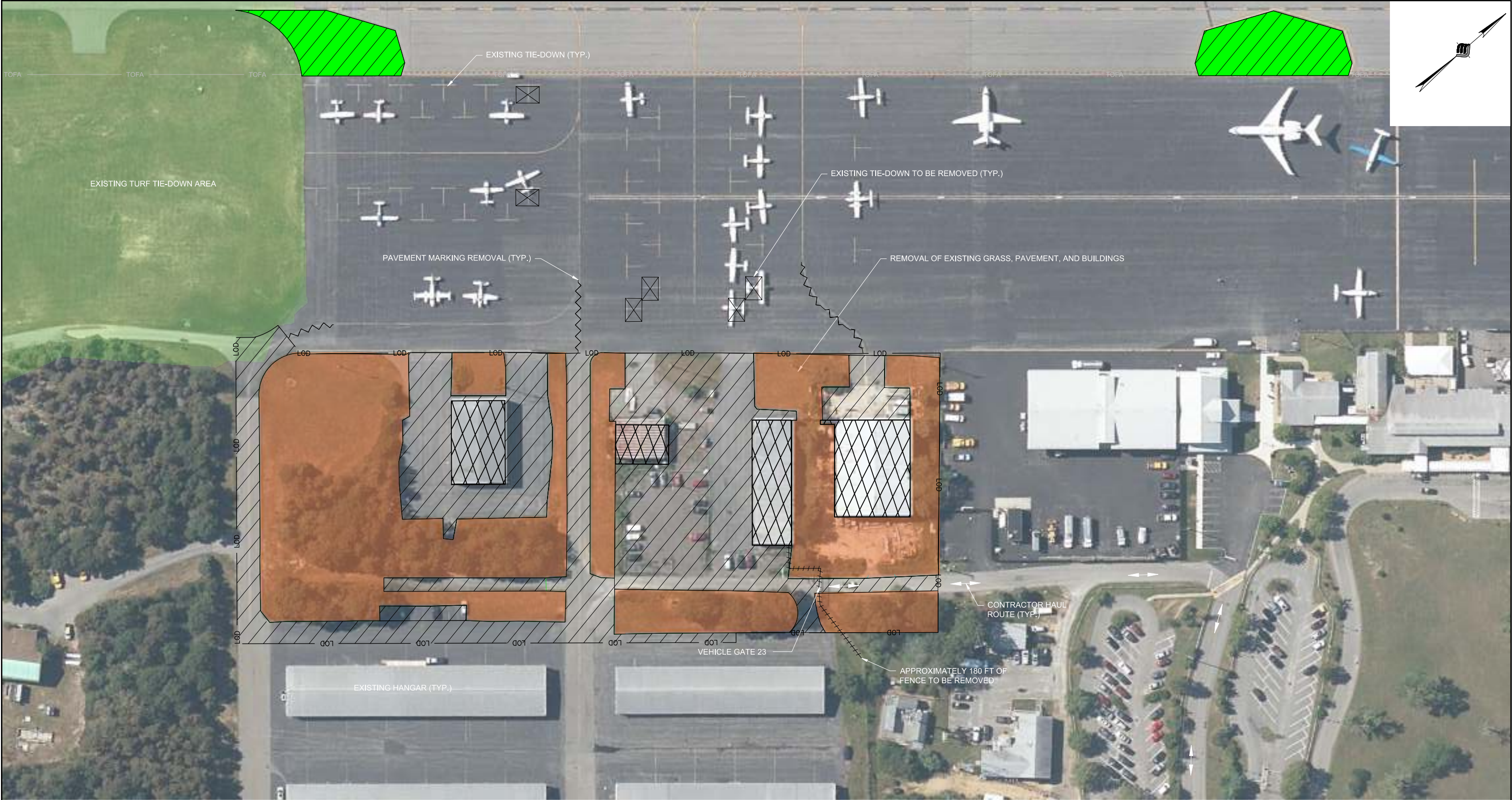
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT

IMPROVE AIRCRAFT PARKING &
MOVEMENT AREAS ALT 9-2B - NEW STUB
TAXIWAY ON SOUTHEAST RAMP (PREFERRED)

SCALE: 1" = 100'	DESIGN: SRS	3-25
DRAWN: SRS	PROJECT: 18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	

McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



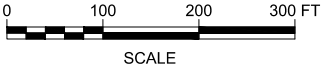
LEGEND

- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- LOD

APPROXIMATE LIMIT OF DISTURBANCE
- TOFA

TAXIWAY OBJECT FREE AREA
- EXISTING PAVEMENT TO BECOME VEGETATED LAND
- GRASS AND TREE AREA TO BE REMOVED
- EXISTING BUILDING TO BE REMOVED
- EXISTING FENCE TO BE REMOVED
- PAVEMENT MARKING REMOVAL

- NOTES
1. DEVELOPMENT SITE SHALL BE USED FOR CONTRACTOR LAYDOWN AREA
 2. AIRCRAFT PARKING AND MOVEMENT AREA DEMO LOCATIONS DIGITIZED FROM AERIAL PHOTO. LOCATION ADJUSTED TO MATCH BASE PLAN PROVIDED BY OTHERS.
 3. AERIAL PHOTO TAKEN IN AUGUST, 2019 BY GEOPRO.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT

IMPROVE AIRCRAFT PARKING &
MOVEMENT AREAS ALT 9-3 - RECONFIG.
SOUTHWEST RAMP - DEMO (PREFERRED)

SCALE: 1" = 100'	DESIGN: SRS	3-26
DRAWN: SRS	PROJECT: 18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	



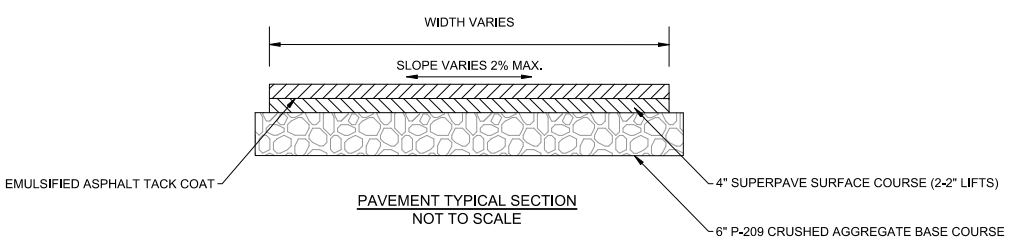
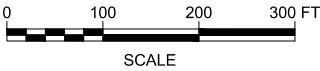
McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301



LEGEND

- APPROXIMATE AIRPORT PROPERTY LINE
- PRIORITY HABITAT
- LOD — APPROXIMATE LIMIT OF DISTURBANCE
- TOFA — TAXIWAY OBJECT FREE AREA
- PROPOSED TAXIWAY CENTERLINE
- PROPOSED PAVEMENT
- EXISTING PAVEMENT TO BECOME VEGETATED LAND
- PROPOSED LANDSCAPE
- PROPOSED FENCE

NOTES:
1. AERIAL PHOTO TAKEN IN AUGUST, 2019.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL ASSESSMENT

IMPROVE AIRCRAFT PARKING &
MOVEMENT AREAS ALT 9-3 - RECONFIG.
SOUTHWEST RAMP - LAYOUT (PREFERRED)

SCALE: 1" = 100'	DESIGN: SRS	3-27
DRAWN: SRS	PROJECT:18226.07	
CHECKED: MTO	DATE: NOVEMBER 2020	

 **McFarland Johnson**
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

Table 3-1 Approximate Areas of Disturbance within Priority and Estimated Habitat (Acres, Preferred Alternatives Shaded)

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETA- TION MGMT
1. Business Park Lots 34 and 38		1.2		1.2	
2. Aircraft Hangar Development	0.7	1.0		1.0	
3. Improve Fuel Farm Access and Safety	0.1				
4A. Airspace Vegetation Management - Runway 6	0.3				2.8
4B. Airspace Vegetation Management - Runway 24					19.9
5-1A. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	9.6	1.5	6.9	-5.5	17.7
5-1B. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct North Parallel Taxiway E and Remove Vegetation Obstructions	12.5	2.8	8.2	-5.4	17.7
5-1C. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct South Parallel Taxiway E and Remove Vegetation Obstructions	12.0	2.7	8.3	-5.6	17.9
5-1D. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Full Parallel Taxiway E and Remove Vegetation Obstructions	10.9	2.5	8.3	-5.7	17.7
5-2. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Raise Runway 15 End, Construct South Parallel Taxiway E and Remove Vegetation Obstructions	17.1	2.5	8.3	-5.8	10.0

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETA- TION MGMT
5-3. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15-33 Threshold 275' and Extend Runway 33 275', Construct South Parallel Taxiway E and Remove Vegetation Obstructions	14.9	3.3	8.3	-5.0	10.0
5-4. Runway 15-33 and Taxiway E Reconstruction - Shift Runway 15-33 275', Construct South Parallel Taxiway E and Remove Vegetation Obstructions	13.5	3.1	8.7	-5.6	13.2
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275', Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	10.1	1.0	7.0	-6.0	9.5
6. Regrade Runway 6-24 Side Safety Areas	26.4				
7. Terminal Building Renovation					
8-1. Access Road Improvements - Right-Turn Lane					
8-2. Access Road Improvements - Roundabout	0.2				
8-3. Access Road Improvements - Connector Road	1.0	0.4		0.4	
8-4. Access Road Improvements - Left-Turn Lane	0.02	0.01		0.0	
9. Improve Aircraft Parking and Movement Areas					
9-1A. Pave Transient Turf Tie-Down Area	0.2	5.1	0.2	4.9	
9-1B. Pave Transient Turf Tie-Down Area, Reduced Pvmt.	0.5	4.1	0.2	4.0	
9-2A. Reconfigure Existing Southeast Ramp			0.2	-0.2	
9-2B. New Stub Taxiway to Southeast Ramp	0.3	0.2	0.2	0.0	
9-3. Reconfigure Southwest Ramp					
TOTAL WITH PREFERRED ALTERNATIVES ONLY	11.4	3.4	7.2	-3.8	32.2

Table 3-2 Approximate Areas of Disturbance within Non-Priority Habitat (Acres, Preferred Alternatives Shaded)

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETA- TION MGMT
1. Business Park Lots 34 and 38					
2. Aircraft Hangar Development	0.1	0.04		0.04	
3. Improve Fuel Farm Access and Safety	0.1				
4A. Airspace Vegetation Management - Runway 6					0.9
4B. Airspace Vegetation Management - Runway 24					
5-1A. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions					
5-1B. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct North Parallel Taxiway E and Remove Vegetation Obstructions					
5-1C. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct South Parallel Taxiway E and Remove Vegetation Obstructions					
5-1D. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Full Parallel Taxiway E and Remove Vegetation Obstructions					
5-2. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Raise Runway 15 End, Construct South Parallel Taxiway E and Remove Vegetation Obstructions					

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETA- TION MGMT
5-3. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15-33 Threshold 275' and Extend Runway 33 275 ft., Construct South Parallel Taxiway E and Remove Vegetation Obstructions			0.3	-0.3	
5-4. Runway 15-33 and Taxiway E Reconstruction - Shift Runway 15-33 275 ft., Construct South Parallel Taxiway E and Remove Vegetation Obstructions			0.3	-0.3	3.1
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275 ft., Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions					
6. Regrade Runway 6-24 Side Safety Areas					
7. Terminal Building Renovation					
8-1. Access Road Improvements - Right-Turn Lane	0.2	0.1		0.1	
8-2. Access Road Improvements - Roundabout	0.7	0.4	0.2	0.2	
8-3. Access Road Improvements - Connector Road	1.5	0.6		0.6	
8-4. Access Road Improvements - Left-Turn Lane	0.3	0.2		0.2	
9. Improve Aircraft Parking and Movement Areas					
9-1A. Pave Transient Turf Tie-Down Area	0.1		0.1	-0.1	
9-1B. Pave Transient Turf Tie-Down Area, Reduced Pvmt	0.1		0.1	-0.1	
9-2A. Reconfigure Existing Southeast Ramp			0.4	-0.4	
9-2B. New Stub Taxiway to Southeast Ramp			0.4	-0.4	
9-3. Reconfigure Southwest Ramp	0.2	2.3*	0.2	2.2	1.0 *
TOTAL WITH PREFERRED ALTERNATIVES ONLY	0.6	2.4	0.5	1.9	1.9

*1.0 acres of vegetated land to become impervious is forested and therefore also in the Vegetation Management column.

Table 3-3 Approximate Areas of Overall Disturbance (Acres, Preferred Alternatives Shaded)

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETA- TION MGMT
1. Business Park Lots 34 and 38		1.2		1.2	
2. Aircraft Hangar Development	0.8	1.0		1.0	
3. Improve Fuel Farm Access and Safety	0.2				
4A. Airspace Vegetation Management - Runway 6	0.3				3.7
4B. Airspace Vegetation Management - Runway 24					19.9
5-1A. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	9.6	1.5	6.9	-5.5	17.7
5-1B. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct North Parallel Taxiway E and Remove Vegetation Obstructions	12.5	2.8	8.2	-5.4	17.7
5-1C. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct South Parallel Taxiway E and Remove Vegetation Obstructions	12.0	2.7	8.3	-5.6	17.9
5-1D. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Construct Full Parallel Taxiway E and Remove Vegetation Obstructions	10.9	2.5	8.3	-5.7	17.7
5-2. Runway 15-33 and Taxiway E Reconstruction - Maintain Existing Thresholds, Raise Runway 15 End, Construct South Parallel Taxiway E and Remove Vegetation Obstructions	17.1	2.5	8.3	-5.8	10.0

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETA- TION MGMT
5-3. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15-33 Threshold 275' and Extend Runway 33 275 ft., Construct South Parallel Taxiway E and Remove Vegetation Obstructions	14.9	3.3	8.5	-5.2	10.0
5-4. Runway 15-33 and Taxiway E Reconstruction - Shift Runway 15-33 275 ft., Construct South Parallel Taxiway E and Remove Vegetation Obstructions	13.5	3.1	9.0	-5.9	16.3
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275 ft., Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	10.1	1.0	7.0	-6.0	9.5
6. Regrade Runway 6-24 Side Safety Areas	26.4				
7. Terminal Building Renovation					
8-1. Access Road Improvements - Right-Turn Lane	0.2	0.1		0.1	
8-2. Access Road Improvements - Roundabout	0.8	0.4	0.2	0.2	
8-3. Access Road Improvements - Connector Road	2.5	1.0		1.0	
8-4. Access Road Improvements - Left-Turn Lane	0.33	0.17		0.2	
9. Improve Aircraft Parking and Movement Areas					
9-1A. Pave Transient Turf Tie-Down Area	0.3	5.1	0.3	4.8	
9-1B. Pave Transient Turf Tie-Down Area, Reduced Pvmt	0.7	4.1	0.3	3.8	
9-2A. Reconfigure Existing Southeast Ramp			0.6	-0.6	
9-2B. New Stub Taxiway to Southeast Ramp	0.3	0.2	0.6	-0.3	
9-3. Reconfigure Southwest Ramp	0.2	2.3*	0.2	2.2	1.0*
TOTAL WITH PREFERRED ALTERNATIVES ONLY	12.0	5.8	7.7	-1.9	34.1

*1.0 acres of vegetated land to become impervious is forested and therefore also in the Vegetation Management column.

3.1 ALTERNATIVES ANALYSIS

3.1.1 Business Park Lots 34 and 38

A portion of Airport property is zoned as a B-III Light Industrial Service District. This land has been developed and leased for non-aviation commercial activities such as light industry, storage, service, and trades. This commercial space adds to the Island's economic vitality without detracting from the viability of other business areas. In addition, the Airport is required by the FAA to generate income from aviation and permitted non-aviation sources to provide revenue for the maintenance and upkeep of the facility. Lot 34 and Lot 38 are within this service district located between East Line Road and Barnes Road. Refer to **Figure 3-1**.

Lot 34 is 0.77 acre and approximately 225 feet by 150 feet, accessed off East Line Road. The vegetation was previously removed from this lot and the ground regraded. It is also within Priority Habitat.

Lot 38 is 0.43 acre and measures approximately 125 feet by 150 feet and is also accessed off East Line Road. This lot has previously been developed by SKY KAY, LLC. The leased lot is used as a tent and party rental business and is located in Priority Habitat.

No-Build

The No-Build Alternative would leave the lots in their current condition, with one lot developed and one partially developed. Since the habitat has already been disturbed, and since this alternative would not provide as much revenue as the build alternative, the No-Build Alternative is not preferred.

Build (Preferred Alternative)

The preferred alternative is for Lot 38 to remain in its current state of development and business use and to permit Lot 34 to be developed for commercial use in the future. Assuming the lots are fully built out, as most in the Business Park are, this would require 1.2 acres of existing vegetated land to become impervious, which would also decrease the Priority Habitat by 1.2 acres. Stormwater management on each lot is the responsibility of the individual lot leaseholders. There is no Airport construction cost associated with this alternative, as one lot is developed and one is prepared for development, and further costs would be the responsibility of the developer or tenant.

3.1.2 Aircraft Hangar Development

Current hangar demand exceeds adequate available hangar space at the Airport. In addition, as noted above, the Airport is required by the FAA to generate income to support the maintenance and upkeep of the facility. The Airport has current demand from a potential new tenant and future demand is anticipated. Refer to **Figure 3-2**.

No-Build

This alternative does not accommodate the current or future demand for hangar space at the Airport. Aircraft will continue to be stored outdoors in harsh weather elements and deicing chemicals will need to be applied in adverse weather conditions. The Airport will jeopardize a potential tenant from leasing space at the Airport which will eliminate future income for the Airport.

Build (Preferred Alternative)

The preferred alternative would allow for the construction of two hangars approximately 9,200 square feet and 15,234 square feet in size to accommodate the current and potential demand for hangar space. This alternative would also include the construction of approximately 25 total vehicle parking spaces to accommodate the two

hangars. This alternative would require the conversion of 1.0 acres of existing vegetated land that is Priority Habitat to impervious surface and require that 0.7 acre of vegetated land, also Priority Habitat, be disturbed to construct stormwater basins and associated grading. The Airport has limited locations where hangars of this size can be constructed, and the location selected along the edge of the Southeast Ramp requires the least amount of pavement construction since the aircraft will use the existing apron and taxiway system for parking and access. The overall project cost, including design, construction, and contingencies, of this alternative is \$6.7 million.

3.1.3 Improve Fuel Farm Access and Safety

The Airport has an existing fuel farm located southwest of Runway 6 and the Turf Tie Down Area. The fuel farm contains three 20,000-gallon fuel tanks which include one 100LL AVGAS tank and two Jet A fuel tanks. The surface of the fuel farm is constructed of crushed asphalt with a concrete pad at the fill station only. The access road also consists of crushed asphalt and connects the fuel farm to the aircraft aprons. The crushed asphalt from both the fuel farm area and the access road is a source of foreign object debris (FOD) on the aprons and possibly the runways. FOD may cause damage to aircraft landing gear, propellers, and jet engines and is a recognized safety hazard. Refer to **Figure 3-3**.

No-Build

The No-Build alternative does not eliminate the crushed asphalt access road nor the crushed asphalt surface within the fuel farm area. By not improving this, the Airport will continue to have potential FOD problems associated with this material.

Build (Preferred Alternative)

This alternative includes paving the access road and the fuel farm area. Paving these two highly traveled areas will reduce maintenance costs associated with the efforts to keep FOD off the apron areas and runways. In addition, paving the entire fuel farm will limit the amount of vegetation growth which is both a maintenance effort and a fire hazard. This alternative will also include the replacement of the existing oil-water separator with a unit designed to meet the current MassDEP stormwater standards for land use with higher potential pollution loads (LUHPPL). The improvements to drainage also include the addition of a new deep sump and hooded catch basin.

This alternative does not require any additional impervious surface and is not an expansion of the existing footprint of the crushed asphalt. Outside of existing impervious surfaces, there would be 0.1 acre of Priority and 0.1 acre of non-Priority Habitat disturbance.

Paving the fuel farm and the access road meets the need by eliminating a safety hazard. Replacing the existing oil-water separator with a new unit upgrades the system to meet LUHPPL standards. This alternative is the preferred alternative and has a construction estimate of \$830,000.

3.1.4 Airspace Vegetation Management

The FAA has regulations and requirements for the protection of airspace and the safety of air navigation by keeping the approaches to runways clear of both natural and manmade obstructions. Having unobstructed airspace improves safety by allowing visual observations of the runway by the pilot, line-of-sight navigational aids, and unobstructed landing and departure slopes for the aircraft using the runway. If vegetation penetrates airspace, it can impact all of these and become a safety concern. Clear approaches are determined by surveying the height of obstructions and comparing them with the FAA defined requirements. If the approach surfaces are not clear, then due to the hazards, FAA can restrict the use and utility of the runway for aircraft.

Runway 6-24 Vegetation Management

Runway 6-24 is the primary runway with a length of 5,504 feet and a width of 100 feet. Runway 6-24 is best aligned with the summer prevailing winds which is the busiest period at the Airport. Runway 6-24 provides services for the larger jets at the Airport including the Embraer 190, Gulfstream G-550, Boeing 737 and Airbus A320. Runway 6-24 was reconstructed, excluding the turf Runway Safety Area (RSA), in 2019.

There are currently vegetation obstructions within the airspace located off both ends of the runway. The vegetation itself is located on Airport property, off Airport property within easements granted to protect aviation, and off Airport without easements. Obstructions to airspace are based upon the navigational properties of the runway, and opposite ends of the runway can have different navigational properties.

Runway 6 has less restrictive navigational properties (i.e., has steeper airspace surfaces) than Runway 24 and therefore can allow for taller vegetation. Because Runway 24 is the Airport's only all-weather runway suitable for inclement weather, it has lower, wider airspace surfaces and less latitude for vegetation growth.

The vegetation obstructions on the Runway 6 end penetrate the 20:1 and 30:1 airspace surfaces. These ratios define the rise over run of the airspace surfaces, in other words, a 20:1 surface rises 1 foot vertically for every 20 feet horizontally. The vegetation obstructions are along both sides of Edgartown-West Tisbury Road on property owned by the Airport and on Manuel F. Correllus State Forest (State Forest) property. A portion of the State Forest land includes an easement for the protection of aviation and allows for vegetation obstruction removal and maintenance, although the status of one easement is uncertain and is currently being investigated.

Vegetation obstructions (mostly trees) are also located in the approach surfaces of the Runway 24 end of Runway 6-24. The approach surfaces with these vegetation penetrations include the 30:1 and 34:1 surfaces. The vegetation obstructions are along both sides of Barnes Road. The vegetation obstructions on the west side of Barnes Road are located on Airport property. The obstructions on the east side of Barnes Road are located within the State Forest, owned and managed by the Commonwealth of Massachusetts, Department of Conservation and Recreation (DCR). A portion of the obstructions located within the State Forest are within easements granted for the protection of aviation. However, there are additional areas that require vegetation removal that do not have an aviation protection easement. This vegetation obstruction removal will require extensive coordination with and approval from the DCR and the Massachusetts legislature through the Article 97 process, as discussed in Chapter 7, Regulatory Compliance. Refer to **Figure 3-5**.

No-Build

For Runway 6-24, it was found that the vegetation obstructions are impacting the safety (and potentially the utility, if FAA restricts its use because of the obstructions) of the runway. To address the potentially unsafe conditions, FAA could require the Airport to shorten the runway, limit the size and type of aircraft allowed on the runway, eliminate the use of the runway during inclement weather, or implement other modifications.

While the No-Build Alternative has no associated development, the flying public and emergency/disaster response would be adversely impacted should the FAA require implementation of these modifications. There could also be adverse economic impacts due to the potential loss of aviation traffic and the economic benefits that are generated by the Airport.

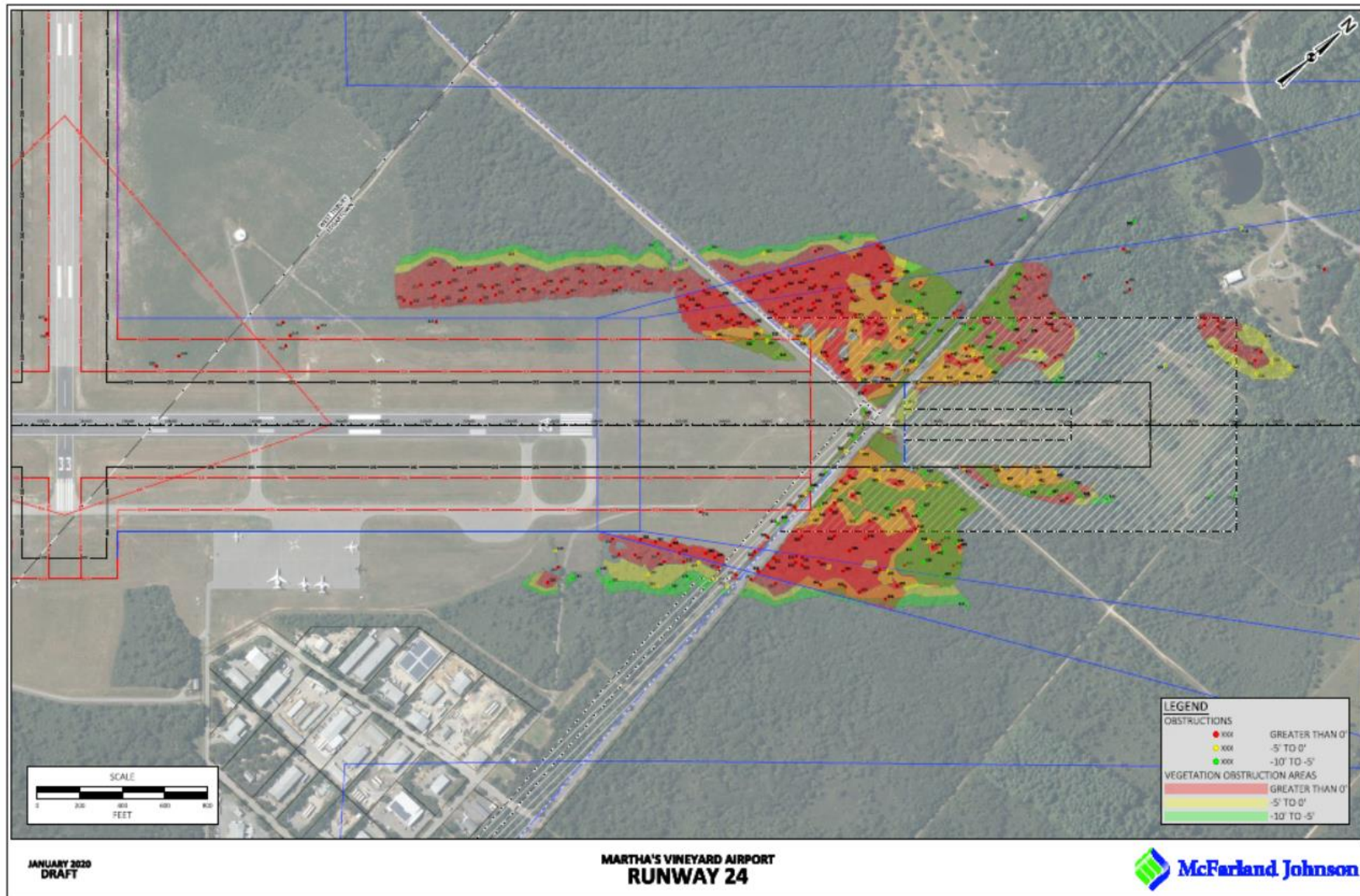
There is no immediate cost to the No-Build Alternative.

Build Alternative: Remove Vegetation from Part 77 Approach Surfaces

The design team initially considered the full range of airspace surfaces that were obstructed by vegetation and could require vegetation removal (primarily trees but also shrubs in some areas). The two airspace surfaces requiring the most vegetation removal are shown below and are called Federal Aviation Regulations (FAR) Part 77 surfaces and departure surfaces. FAR Part 77 provides for the regulation of objects affecting navigable airspace. However, it does not require removal of objects affecting airspace, but requires that users of the airspace be notified of the objects. Departure surfaces define surfaces that should be clear of obstructions so that aircraft can take off using instruments when visibility is poor. There is no published instrument departure procedure at the Airport, and FAA is not requiring the Airport to remove obstructions from departure surfaces at this time.

Removing trees from the full extent of FAR Part 77 approach surfaces and departure surfaces would result in over 46 acres of vegetation management, including a substantial amount within the State Forest outside of airport easements (**Figure 3-28**). Because FAA is not requiring that the FAR Part 77 approach and departure surfaces be cleared, and in consideration of the State Forest, sensitive habitats, numerous rare species, and the regulatory hurdles associated with vegetation management in the State Forest, the Airport prefers to reduce vegetation alteration to the minimum necessary to maintain current aircraft operational capabilities. For these reasons, this alternative was eliminated from consideration.

Figure 3-28 Vegetation Management Needed to Clear FAR Part 77 Approach and Departure Surfaces



Build (Preferred Alternative)

The build alternative would allow the Airport to remedy the potentially unsafe conditions by removing the vegetation obstructions. This would allow the Airport to maintain the current status of the runway, maintain the runway length, continue to service the aircraft types currently using the Airport, maintain the economic benefits generated by the Airport, enhance the safety of operations, and allow the Airport to continue to service flights during inclement weather by maintaining Martha's Vineyard's only all-weather runway.

The vegetation removal in the approach of Runway 6 would impact 3.7 acres of trees and the approach to Runway 24 end would impact 19.9 acres of mostly trees (**Figures 3-4 and 3-5**). Most of the vegetation management would be either on Airport property or within aviation easements on State Forest property, although the status of one of the easements is uncertain. Approximately 3.2 acres of the tree removal would be within the State Forest where there are no existing easements. All but 0.9 acres of the vegetation management would be within Priority Habitat of Rare Species. Most of the forested habitat would be converted to successional habitat that would continue to support rare species and provide other ecosystem functions.

The vegetation management along portions of both Edgartown-West Tisbury Road and Barnes Road would affect the viewshed of the shared-use path and traveling vehicles for a distance of approximately 1,118 feet along the Runway 24 end and 1,292 feet along the Runway 6 end. The vegetation management along Barnes Road would also affect the viewshed of traveling vehicles where a more open landscape along the State Forest would be visible.

The total cost of the project is estimated at \$1.3 million.

3.1.5 Runway 15-33 Vegetation Management

Runway 15-33 is the secondary or crosswind runway at Martha's Vineyard Airport with a length of 3,328 feet and a width of 75 feet. Runway 15-33 has a Runway Design Code of a B-II. FAA runway design standards are based on the Runway Design Code of the most demanding aircraft or group of aircraft that conduct at least 500 annual operations (takeoff or landing) on the runway. In this case, Runway 15-33 is utilized by small turboprop aircraft that typically hold up to 11 passengers, such as the King Air 200, Rockwell Turbine Commander 1000, Piper Cheyenne III, as well as most piston-engine aircraft. The crosswind runway is important to smaller aircraft because it is critical that they be able to take off and land into the wind.

The vegetation obstructions to Runway 15 impact the 20:1 and the 30:1 surfaces. Runway 15-33 is located on Airport property; however, the Airport does not own or have easements beyond the end of Runway 15 where vegetation obstructions are located, and these vegetation obstructions occur within the property boundaries of the State Forest. Similar to Runway 24, removing these vegetation obstructions would require extensive coordination with and approval from the DCR and the Massachusetts legislature through the Article 97 process.

The vegetation obstructions to Runway 33 also impact the 20:1 and the 30:1 surfaces; however, the vegetation obstructions requiring removal are located on Airport property.

No-Build

The No-Build alternative would compromise Airport safety and reduce the utility of the existing runway, negatively impacting existing Airport operations. The impacts to Runway 15-33 are similar in that the FAA has regulations and requirements for the protection of airspace and the safety of navigation, and these include the protection of the end of runways from obstructions both natural and manmade. Runway 15-33 does not have line-of-sight navigational aids and requires visual observation of the runway by the pilot and unobstructed approach and departure surfaces.

For Runway 15-33, it was found that the vegetation obstructions are impacting the safety of the runway and as a result, the FAA could require runway modifications. These could include shortening the runway, limiting the size and type of aircraft allowed on the runway, or other modifications. Shortening the runway or limiting the size and type of aircraft would severely reduce its utility, as it only supports a limited range of aircraft sizes and shortening it would further restrict the aircraft that could use it. Aircraft of all sizes have an allowable crosswind component or a crosswind speed that a plane can safely handle during arrival and departure. Runway 6-24 is the main runway at the Airport and is often utilized independent of wind conditions. However, when crosswind conditions are greater than 10 knots, small piston aircraft cannot safely arrive or depart and are required to utilize Runway 15-33 for arrivals and departures. If Runway 15-33 were substantially modified or restricted, these aircraft would frequently be unable to use the Airport, other than for emergency landings.

Build Alternatives 1A, 1B, 1C, and 1D – Removing Tree Obstructions in Both Runway Approaches

These alternatives (**Figures 3-6 through 3-9**) all would maintain the existing runway thresholds and remove the vegetation obstructions on both runway approaches, maintaining the current status of the runway. The alternatives differ in what is proposed for Taxiway E: Alternative 1A includes a partial parallel taxiway; Alternative 1B proposes a full parallel taxiway on the north side; and Alternatives 1C and 1D propose full parallel taxiways on the south side. These would allow the Airport to maintain the runway length in its current location, and to continue to service the type of aircraft currently using the Airport. This would require vegetation obstruction removal on both ends of the runway including vegetation management in the State Forest.

These options have been eliminated due to the tree removal required in the State Forest and the requirements of Article 97.

Build Alternatives 2, 3, 4, and 5 – Avoid Removing Tree Obstructions within State Forest

These alternatives (**Figures 3-10 through 3-13**) were developed in response to concerns over impacts within the State Forest and the regulatory requirements of Section 4(f) and Article 97. The objective is to avoid tree removal and vegetation management within the State Forest in the Runway 15 approach, as described below in Section 3.1.6.

Alternatives 2, 3, and 4 were eliminated from consideration for reasons described in Sections 3.1.6 and 3.1.7 below.

Alternative 5 would reduce the arrival length on Runway 33 by 275 feet from 3,328 feet to 3,053 feet, as described in Section 3.1.6 below. This alternative eliminates the requirement of vegetation obstruction removal in the State Forest on the Runway 15 end and minimizes the impacts of Runway 15-33 and Taxiway E improvements. It would require 9.5 acres of vegetation management on the sides of the Runway 15 end and in the approach to the Runway 33 end, all on Airport property. It has been selected as the preferred alternative. In the future, the operational length of Runway 15-33 will need to be studied in more detail to determine if the 3,328 feet of arrival length is required for future operations.

3.1.6 Runway 15-33 Reconstruction

Runway 15-33 is the secondary runway at Martha's Vineyard Airport with a length of 3,328 feet and a width of 75 feet. The runway was last reconstructed in 1992, and the FAA typically expects a service life of 20 years. The runway is showing signs of advanced deterioration with distresses such as weathering and cracking. In addition, the runway was previously 150 feet wide, and the excess pavement along each side was never removed and has deteriorated to where it is disintegrating and causing FOD to migrate onto the runway.

Prior to the reconstruction of runways, the FAA requires that runway approaches be clear of vegetation obstructions and that runway safety areas meet criteria. Runway safety areas are paved or turf areas located at the ends of runways and along the sides of runways that meet FAA criteria; specifically, they must be capable of supporting aircraft during emergency situations, free of obstruction, and cleared and graded to drain. The side safety areas along Runway 15-33 require grading to meet these criteria.

No-Build

The necessary reconstruction of Runway 15-33 and the side safety areas would not occur with the No-Build alternative, and the runway and its shoulders would continue to deteriorate. This would require the Airport to continue to perform regular maintenance and FOD removal. Additionally, airports that receive FAA financial support are obligated to maintain and upkeep the facilities to FAA standards or jeopardize future financial support.

Build Alternatives 1A, 1B, 1C, and 1D – Maintain Existing Thresholds

These build alternatives are shown in **Figures 3-6 through 3-9**. Alternatives 1A, 1B, 1C, and 1D include the reconstruction of the runway and side safety areas in the current location, while maintaining the current dimensions of 3,328 feet long by 75 feet wide. This would allow the Airport to maintain the current utility of the runway; however, these alternatives require additional vegetation management overall (approximately 18 acres) and tree removal in the State Forest on the Runway 15 end. The total cost of these alternatives (including Taxiway E reconstruction) range from \$11.2 to \$11.7 million.

These options have been eliminated due to the tree removal required in the State Forest and the requirements of Article 97.

Build Alternative 2 – Maintain Thresholds and Raise Runway Profile

Alternative 2 (**Figure 3-10**) includes the reconstruction of Runway 15-33 at a new profile grade that will raise the Runway 15 end approximately 14 higher than the existing condition. This would maintain the length and utility of the runway without having to remove vegetation obstructions within the State Forest. However, this would require approximately 130,000 cubic yards of fill, and require disturbing 17.1 acres of Priority Habitat and rare plants adjacent to the runway. The total cost of this alternative (including Taxiway E reconstruction) would be \$15.0 million. Due to the cost and extensive disturbance of habitat, this alternative has been eliminated.

Build Alternative 3 – Displace Runway 15 Threshold and Extend Runway 33 End

This alternative (**Figure 3-11**) would utilize an FAA procedure known as declared distance. Declared distance defines the operational length of a runway independent of the overall length and is utilized when adverse conditions eliminate the ability for the runway to be used for its full length. Runways have two ends, and each end has two functions, arrival and departure. This means that Runway 15-33 has four functions, arrivals and departures on each end. Runway 15-33 has an overall length of 3,328 feet and the operational length for each of the four functions is 3,328 feet. For each end of the runway the impact from trees is only for arriving aircraft; trees on the Runway 15 end only impact aircraft arriving on Runway 15 not aircraft departing on Runway 15. Based upon an analysis of the vegetation obstructions on the Runway 15 end, arriving aircraft would need to land 275 feet south of the existing end of the runway. Therefore, to avoid shortening the arrival length of the runway, 275 feet of additional pavement would be constructed on the Runway 33 end. The vegetation management on the Runway 33 end would be similar to Alternatives 1A, 1B, 1C, 1D, and 2, and the additional 275 feet of pavement would be constructed within the existing grass safety area. Utilizing the FAA procedure of declared distance, the additional 275' would not be available for any other operation, so that the operational length of the

runway for each of the four functions would remain at 3,328 feet. The total cost of this alternative (including Taxiway E reconstruction) would be \$12.1 million.

This alternative would result in approximately 2.3 acres in additional impervious surface than Alternative 5 and would impact approximately 4.8 acres more Priority Habitat; therefore, this alternative has been eliminated.

Build Alternative 4

This alternative (**Figure 3-12**) includes the shifting of Runway 33 275 feet to the south. The total cost of this alternative would be \$11.7 million. This alternative would result in approximately 2.1 acres more impervious surface than Alternative 5, would impact approximately 3.3 acres more Priority Habitat, and would require 4.3 acres more vegetation management. Therefore, this alternative has been eliminated.

Build Alternative 5 (Preferred Alternative)

This alternative (**Figure 3-13**) would reduce the arrival length (landing distance available) on Runway 33 by 275 feet, from 3,328 feet to 3,053 feet. The Airport has reviewed current usage of the runway, has solicited comments from Cape Air and the U.S. Coast Guard, both of which rely on Runway 33 for arrivals, and has determined that a reduction in arrival length of 275 feet would not adversely affect their operations. The total cost of this alternative (including Taxiway E reconstruction) would be \$10.4 million.

This alternative eliminates the requirement of vegetation obstruction removal in the State Forest on the Runway 15 end and has less overall vegetation management (8.9 acres) than the other alternatives. It also minimizes the impacts of Runway 15-33 and Taxiway E improvements, with 10.1 acres of temporary impact. It has been selected as the preferred alternative. In the future, the operational length of Runway 15-33 will need to be studied in more detail to determine if the 3,328 feet of arrival length is required for future operations.

3.1.7 Taxiway E Reconstruction

Taxiway E is a holdover from the former U.S. Navy configuration. Converted from a former runway, Taxiway E provides skewed, or non-perpendicular, access to both Runways 6-24 and 15-33. This configuration restricts visibility of the runway approach area for aircraft crossing or entering a runway.

The current configuration of Taxiway E also does not provide access to the threshold of Runway 15. To use the full runway length for departures or landings, an aircraft is required to back-taxi on the runway, which increases the risk of conflicts between aircraft using the runway.

No-Build

The No-Build alternative leaves Taxiway E in its current location and does not provide a taxiway connection to the Runway 15 threshold, so pilots will still need to back-taxi on the runway, which is a safety concern.

Build Alternatives 1A and 5 – Partial Parallel Taxiway (Preferred)

These alternatives retain the majority of the existing Taxiway E while reconstructing each end of the taxiway. A new portion of taxiway would be constructed parallel to Runway 15 which will provide a connection to the Runway 15 end and therefore eliminate the need to back taxi. At the Runway 6 end the intersection would be reconstructed to be perpendicular which will enhance visibility for pilots crossing the runway.

Alternative 1A includes the construction of a holding bay at Runway 15. Holding bays are paved areas where piston aircraft can park while completing pre-flight equipment checks and also provide areas for planes to turnaround should a return to the terminal be required. Upon discussion with the Airport, it has been determined that a holding bay is not necessary; therefore, this alternative has been eliminated.

Alternative 5 resolves the skewed connections with runways, extends Taxiway E to the Runway 15 threshold, and minimizes the amount of vegetation management, Priority Habitat impact and construction cost. Therefore, Alternative 5 is the preferred alternative.

Build Alternative 1B, 1C, 1D, 2, 3 and 4 – Construct Full Parallel Taxiway

These alternatives include the replacement of the existing alignment with a conventional parallel taxiway alignment located either north or south of Runway 15-33. These alternatives differ in the following ways:

Alternative 1B proposes a parallel taxiway along the south side of Runway 15-33 and a partial parallel taxiway to Runway 6-24, aligned with Taxiway C to access the terminal area. While aligning with Taxiway C provides the most direct access to the terminal area, Taxiway C crosses Runway 6-24 in the “high energy” portion of the runway. The FAA defines the “high energy” portion of the runway as the middle third of the runway and is the portion of the runway where a pilot can least maneuver to avoid collisions.

Alternative 1C replaces the existing alignment with a conventional parallel taxiway alignment, similar to Alternative 1B, but locates it to the north of Runway 15-33, and then constructs a partial parallel taxiway to Runway 6-24 and aligns with Taxiway B.

Alternatives 1D and 2 replace the existing alignment with a conventional full parallel taxiway alignment for Runway 15-33. Similar to Alternative 1B, these alternatives cross Runway 6-24 in the “high energy” portion of the runway.

Alternative 3 is similar to Alternatives 1D, and 2, but would be extended to align with the relocated end of Runway 33.

Alternative 4 is similar to Alternative 3, but it would align with the relocated end of Runway 15.

Alternatives 1B, 1C, 1D, 2, 3, and 4 all would have extensive amounts of new construction and impacts to Priority Habitat, as well as high costs. Therefore, they have been eliminated from consideration.

3.1.8 Regrade Runway 6-24 Side Safety Areas

During design of the recent Runway 6-24 rehabilitation, it was determined that the runway safety area side slopes do not meet FAA grading criteria outlined in Advisory Circular (AC) 150/5300-13A throughout the length of the entire runway on both sides. The total acreage of the area to be re-graded is approximately 26.4 acres, all within Priority Habitat. Refer to **Figure 3-14**.

No-Build (Preferred)

The FAA Airport Design Advisory Circular states the side safety areas, which extend 200 feet off each side edge of pavement into the grass, should be: clear and graded and have no hazardous ruts, humps, depressions, or other surface variations; drained by grading or storm sewers to prevent water accumulation; capable under dry conditions of supporting snow removal equipment, aircraft rescue firefighting equipment, and the occasional passage of aircraft without causing damage to the aircraft; and free of objects, except those required because of their function, greater than 3 inches above grade. The No-Build does not meet the FAA standards because it is not graded properly, but it meets the functional requirements, i.e., it lacks hazardous surface variations, rarely has water accumulation, is capable of supporting equipment, and is free of objects.

The FAA has a procedure outlined in FAA Order 5300.1 “Modifications to Agency Design, Construction, and Equipment Standards” that allow airports to request FAA approval for non-compliant conditions to remain. Surface Gradient standards are a standard that can obtain Modification of Standards. The Airport will submit a

request to the FAA, and if approved, regrading will not be required, and the No-Build Alternative will be selected. If the modification of standards is not approved by the FAA, the side safety areas will require regrading and the preferred alternative will need to be revised. Because the existing conditions meets FAA's functional requirements for safety areas, and because it is believed the Modification of Standards will be approved, the No-Build Alternative is the preferred alternative.

Build Alternative – Regrade Safety Area

This alternative includes regrading the turf to meet FAA safety area design guidelines. Redesigning the runway side safety areas to meet these criteria results in approximately 26.4 acres of grading around the runway within Priority Habitat. This alternative would cost approximately \$3.6 million to construct.

3.1.9 Terminal Building Renovation

The existing Airport terminal building was constructed in 1999. Since that time the airline industry and airport experience have undergone significant changes. Since the events of September 11, 2001, many changes to airport security and baggage and passenger screening, and the location of airport concessions. Prior to September 11, 2001, "meeters and greeters" could congregate post-security and people could freely travel back and forth through the security checkpoint. This reduced the amount of concessions and passenger amenities such as restrooms, and other services that airports provided.

Additionally, many systems have neared the ends of their service lives. These include HVAC, electrical, and security and access control systems. Changes to Airport security include larger screened passenger hold rooms and larger areas for the screening of passengers and baggage.

Changes to the airline industry include modifying the size of aircraft utilized by commercial service airlines and reductions in on-aircraft catering. These changes have required increases to screened passenger hold rooms, and more concessions and rest rooms post-security.

Terminal alternatives are shown in **Figures 3-19 through 3-21**.

No-Build

The No-Build option leave the current terminal building unmodified. The Airport will be required to perform updates to systems and will be required to continue to hold screened passengers in an unconditioned tent without restrooms, and concessions limited to vending machines.

Build Alternative 1 – Preserve and Renovate

Alternative 1 includes the preservation and renovation of the majority of the existing structure, augmented with the functional space necessary to meet the current capacity and safety needs of the Airport. Renovation would include updating internal communications and technology, along with replacement of aging heating, ventilation, and cooling (HVAC) equipment and meeting other required codes. The facility's power capacity and security would also be updated to meet today's needs. The majority of the improvements would be internal, or beyond Transportation Safety Administration (TSA) security screening, and not able to be viewed from the curb line. This option seemed most logical in nature and resulted in two more refined alternatives.

Build Alternative 1A – Preserve and Renovate – Seasonal (Preferred Alternative)

Alternative 1A includes the preservation and renovation of the majority of the existing structure and augments it with necessary functional space to meet the current capacity and safety needs of the Airport. The current TSA security screening area would be shifted back behind the terminal building to make room available for passenger

queueing and TSA offices. The existing airline offices and break room would be reoriented to allow for baggage to be transferred from the ticket area to TSA baggage screening in the rear of the building. The existing seasonal vinyl tent and port-a-potties, along with a paved area used to park equipment located in the rear of the building, would be replaced with a permanent structure with adequate seating, air conditioning, and restrooms to accommodate the existing passenger loads. An area will be designated for Cape Air, an air carrier which operates year-round, to provide a heated waiting area for non-secure passengers. Currently Cape Air's waiting area is an outdoor pavilion located to the plan-right of the terminal building.

A new three-season pavilion will be erected behind the existing courtyard to accommodate the seasonal peak in arrival baggage. The existing baggage claim area will be upgraded with energy saving measures to maintain operation within the winter months.

A new air-lock vestibule will be constructed on the front of the terminal building beneath an existing overhang to meet the state law requirement for building code efficiency.

Preserving the look and feel of the facility, renovation would include updating internal communications and technology, along with replacement of aging heating, ventilation, and cooling (HVAC) equipment and meeting other required codes. The facility's power capacity and security would also be updated to meet today's needs. The majority of the improvements would be internal, or to the airfield side of the existing terminal building, and not able to be viewed from the curb line. The total cost of this alternative would be \$16.9 million.

Because this alternative provides the space and services needed to meet current and projected needs, it is the preferred alternative.

Build Alternative 1B – Preserve and Renovate – Year Round

Much like Alternative 1A, Alternative 1B includes the preservation and renovation of the majority of the existing structure and augments it with necessary functional space to meet the current capacity and safety needs of the Airport.

The current TSA security screening area would be oriented in the most efficient configuration to screen passengers albeit reducing the non-secured waiting area and separating the spaces allocated for TSA offices. This TSA orientation reduces the amount of space allocated to passenger queueing and creates a pinch point in the flow of the building as congestion builds while visitors patronize the restrooms and the restaurant. This provides more space for the passenger hold room which replaces the existing seasonal vinyl tent and port-a-potties, along with a paved area used to park equipment located in the rear of the building, which would be replaced with a permanent structure with adequate seating, air conditioning, and restrooms to accommodate the existing passenger loads.

Airline offices remain in the same configuration as Alternative 1A to address the TSA baggage screening operation in the rear of the building.

Alternative 1B includes the option of encompassing the existing courtyard with a permanent structure and elongating the arrival baggage claim area with a mechanical baggage carousel. This alternative would be visible from the existing curb line and create the larger conditioned space in the arrival baggage area that would require heating during winter months when passenger volumes are at their lowest.

A new three-season pavilion will be erected behind the courtyard to accommodate the seasonal peak in arrival baggage claim. The existing baggage claim area will be upgraded with energy saving measures to maintain operation within the winter months.

A new air-lock vestibule would be constructed on the front the terminal building beneath an existing overhang to meet the state law requirement for building code efficiency.

Preserving the look and feel of the facility, renovation would include updating internal communications and technology, along with replacement of aging heating, ventilation, and cooling (HVAC) equipment and meeting other required codes. The facility's power capacity and security would also be updated to meet today's needs.

Build Alternative 2 – Preserve Central Corridor and Renovate

The objective of Alternative 2 is to preserve the central corridor which is identified as the main lobby area and remove the remaining portions of the building to start new. As an attempt to preserve the positive features of the structure, this option is costly and would create a large disruption to operations along with likely visual changes of the building from the curb line. This option was dismissed early in the process and was not further refined.

Build Alternative 3 – Remove and Replace

This alternative removes the existing structure and starts new from the ground up. In addition to the greatest cost, this option would result in the greatest visual change from the curb line and create the largest disruption to operations. This option was dismissed from consideration early in the design process.

3.1.10 Access Road Improvements

At the intersection of Airport Road and Edgartown-West Tisbury Road, traffic is constant and often causes a queue on both roads. Making the left turn from Airport Road onto Edgartown-West Tisbury Road is often difficult, which causes a backup of vehicles waiting to turn both left and right since Airport Road is currently one lane. For vehicles traveling east on Edgartown-West Tisbury Road, the single lane causes a wait when a vehicle attempts to make a left turn onto Airport Road and vehicles traveling east cannot pass. To mitigate the traffic backup, four different traffic alternatives were considered.

No-Build

Level of Service (LOS) is a term used to characterize the operational conditions of a traffic facility and their perception by motorists and/or passengers at a point in time. Numerous factors contribute to a facility's LOS index including travel delay, speed, congestion, driver discomfort, convenience, and safety based on a comparison of the facility's capacity to the facility's demand. The alphabetic designations A through F define the six levels of service. LOS A represents very good traffic operating conditions with minimal delays while LOS F depicts poor traffic operating conditions with excessive delays and queues that are unacceptable to most motorists.

The Level of Service at this intersection is currently an F with observed queue lengths frequently over 300 feet, and a modeled 95th percentile (design) queue length of 625 feet². The No Build would not improve these conditions.

² See the 2020 *Surface Transportation Study* by McFarland-Johnson, Inc., included in Appendix G (available upon request).

Build Alternative 1 – Right-Turn Lane (Preferred Alternative)

The first alternative (**Figure 3-15**) is a new right-turn lane on Airport Road for turns onto Edgartown-West Tisbury Road. The purpose of this alternative is to reduce the queue on Airport Road by filtering out the right-hand turn vehicles and shortening the queue. This alternative disturbs a total area of 0.3 acre in non-Priority Habitat. The right turn lane partially meets the need by reducing the wait time on Airport Road. The queue is reduced both in the immediate condition and during the design year of 2029. This alternative would cost approximately \$608,000 to design and construct. This incremental improvement is the preferred alternative since it provides reduced wait time, causes the least amount of land disturbance and net new impervious surface, and is less costly than other alternatives. It also does not require any construction in Priority Habitat.

Build Alternative 2 – Roundabout

The next traffic alternative (**Figure 3-16**) is adding a roundabout at the intersection. The roundabout would have one lane and three entry/exit points: two for Edgartown-West Tisbury Road and one for Airport Road. The roundabout design would disturb a total of 1.8 acres, including 0.2 acre of temporary disturbance in Priority Habitat and 1.6 acres of disturbance area in non-Priority Habitat, including 1.2 acres of regrading existing ground. The net new impervious of this alternative is 0.2 acre. While this alternative provides the greatest improvement to traffic exiting the Airport, it slightly reduces the level of service for through traffic on Edgartown-West Tisbury Road. This alternative would cost approximately \$2.3 million to design and construct. This alternative also requires construction within Priority Habitat, and while this alternative could ultimately be required, it is being eliminated due to loss of habitat and reduced travel efficiency on the main road.

Build Alternative 3 – Connector Road

The third build alternative (**Figure 3-17**) is widening and paving the service road, Fire Road 53. Fire Road 53 is currently a gravel connector service road between Airport Road and Fire Road 55. This alternative aims to reduce the traffic at the intersection of Airport Road and Edgartown-West Tisbury Road by diverting a portion of the left turning vehicles from Airport Road to Fire Road 55.

The temporary disturbance to vegetated land would be 2.5 acres, with 1.0 acre within Priority Habitat and 1.5 acres in non-Priority Habitat. Construction will add 1.0 acres of new impervious. This alternative partially meets the need by reducing the number of vehicles attempting to turn left from Airport Road but will not help those who are traveling east on Edgartown-West Tisbury Road. This alternative would cost approximately \$3.6 million to design and construct. This alternative is being eliminated due to the loss of habitat.

Build Alternative 4 – Left-Turn Lane

The final traffic alternative (**Figure 3-18**) would add a left-turn lane on Edgartown-West Tisbury Road by widening the road. This would also create a right-turn lane when traveling west on the road. There would be a relatively small amount of habitat disturbance and new impervious surface. This alternative partially meets the need by reducing the traffic backup when traveling east on Edgartown-West Tisbury Road by allowing non-turning vehicles to pass. However, the wait on Airport Road would remain the same. This alternative would cost approximately \$787,000 to design and construct. This alternative is being eliminated since it does not improve the Level of Service for vehicles exiting the Airport.

3.1.11 Aircraft Parking and Movement Areas

Currently the Airport has four paved aprons for aircraft parking (approximately 556,000 square feet total pavement and 513,000 square feet of space useable for aircraft parking): the Southeast Ramp, North Ramp, Restaurant Ramp, and the Transient Tie-Down Ramps. The Transient Ramps include the paved tie-downs and the

unpaved Turf Tie-Down Area. The Southwest Ramp refers to the paved Transient Tie-Down Ramp and the adjacent area occupied by hangars and pavement. (Note: All of these have at times been referred to as “aprons,” and the terms apron and ramp are interchangeable.)

As detailed in Chapter 2, the Airport has seen a reduction in usable apron area for General Aviation over the last few years, due to changes in Taxiway Object Free Area requirements, implementation of a no-taxi apron Island across from Taxiway C, construction of a fire lane in front of the new Aircraft Rescue and Fire Fighting building, and a doubling of the existing Security Identification Display Area (SIDA). The Master Plan Update estimated there was 671,440 square feet of apron space, and approximately 158,000 square feet of useable space has been lost, leaving approximately 513,000 square feet of space available for aircraft parking and movement. The Airport needs to replace that lost apron area for parking and movement of aircraft to maintain the existing operations.

Several alternatives have been developed to address these deficiencies.

No-Build

The No-Build alternative would not replace the apron area that has been lost over the past several years. This reduction in parking equates to loss of income from tie-down fees, fueling, and other services.

Build Alternative 1A – Pave Transient Turf Tie-Down Area

The transient turf tie-down is located southwest of Taxiway D and has approximately 28 parking positions. Alternative 1A (**Figure 3-22**) includes the paving of the existing turf tie-down area and reconfiguring the layout to maximize aircraft parking. The reconfiguration improves the layout and efficiency and results in 12 additional parking positions for a total of 40 spaces. This would add an additional 5.1 acres of new impervious surface in Priority Habitat. Due to this reconfiguration, portions of the gravel access road between the Southwest Apron and the fuel farm could be removed, making the net new impervious area 4.8 acres. While this alternative provides additional spaces for the Group I aircraft, it does not provide any additional spaces for Group II or larger aircraft. The apron would be accessed via a taxilane entrance from Taxiway A at the Runway 6 holding bay, as well as from the existing apron. All aircraft would park in designated tie-down positions. The expanded apron is predominantly anticipated to be utilized by aircraft that will be parked at the Airport for longer periods of time (several days at a time, if not longer).

The cost to design and construct this paved tie-down area is approximately \$4.6 million. This alternative is being eliminated since it does not satisfy the need for additional Group II and larger aircraft spaces.

Build Alternative 1B – Pave Transient Turf Tie-Down Area with Reduced Pavement

Alternative 1B (**Figure 3-23**) is a modification of Alternative 1A and provides the same number of additional parking positions while requiring less impervious surface and less impacts to habitat. However, similar to Alternative 1A, it provides more spaces for the Group I aircraft but does not provide any additional spaces for Group II or larger aircraft. The reduced paving of the tie-down area would add approximately 3.9 acres of new impervious surface. Like the last alternative, a portion of the access road to the fuel farm will be removed. The apron would be accessed via a taxilane entrance from Taxiway A at the Runway 6 holding bay, as well as from the existing apron. All aircraft would park in designated tie-down positions. The expanded apron is predominantly anticipated to be utilized by aircraft that will be parked at the Airport for longer periods of time (several days at a time, if not longer). The cost of design and construction would be approximately \$4.0 million. This alternative is being eliminated since it does not satisfy the need for additional Group II and larger aircraft spaces.

Build Alternative 2A – Reconfigure Existing Southeast Ramp

Reconfiguring the Southeast Ramp is the third aircraft parking alternative (**Figure 3-24**). This alternative includes the removal of the existing pavement markings and a reconfiguration of the apron, creating space for eleven Group II aircraft tie-downs and 2 spaces for an aircraft as large as a Cessna Citation X. The alternative also reconfigures the apron so that hangars may be added to the side opposite of Taxiway A. The apron would be accessed via two taxilane entrances from Taxiway A, north of Taxiway B. All aircraft would park in designated tie-down positions. The expanded apron is predominantly anticipated to be utilized by aircraft that will be parked at the Airport for longer periods of time (several days at a time, if not longer). This apron would only be used by transient aircraft staying shorter periods of time when no other parking positions are available.

It is anticipated that the use of aircraft mounted auxiliary power units (APU) will primarily occur for expedited start-up of aircraft equipment, or when pilots are completing required pre- and post-flight procedures. The Airport has a posted time limit of 15 minutes for APU operation. The FBO has external DC-powered ground power units (GPU) available for use by aircraft in lieu of the APU or idling engines. During pre-flight activities, pilots will perform required safety checks of the aircraft to ensure all equipment is properly functioning prior to flight. Each aircraft has a specific operating handbook with detailed pre-flight checks that are required by pilots. This typically includes, but is not limited to, review of flight controls, instruments and radios, lighting, the altimeter, fuel gauges, flaps, and the engines. These activities are imperative to ensuring that the aircraft is suitable for takeoff. There may be instances, particularly during peak departure periods, where aircraft will idle on the apron while awaiting clearance to depart. Due to a significant amount of traffic departing Martha's Vineyard towards destinations with high traffic levels, such as the Greater New York City area, aircraft can be delayed on the ground awaiting clearance from Air Traffic Control (ATC) to takeoff due to congestion. While these events cannot be predicted, and can be exacerbated by weather conditions, the occasions when aircraft may experience these delays will be limited as movement on the apron will be limited due to the transient nature of the space. These conditions are directly the result of ATC and weather-related delays that cannot be controlled or mitigated by the Airport.

There would be a net decrease of 0.6 acre impervious, with only pavement being disturbed. The cost of this alternative is approximately \$684,000. This alternative partially meets the Airport needs in adding additional aircraft parking, but it is eliminated as it does not add as many parking spaces as the Airport needs.

Build Alternative 2B – New Stub Taxiway on Southeast Ramp (Preferred Alternative)

Build Alternative 2B (**Figure 3-25**) includes the addition of a stub taxiway to the Southeast Ramp to provide for more spaces for larger aircraft while still providing a taxilane to be used for future hangar access. Reconstructing the Southeast ramp would create nine tie-down spaces for Group II aircraft, and five spaces for a Cessna Citation X. The apron would be accessed via two taxilane entrances from Taxiway A, one north of Taxiway B and the other to the south. All aircraft would park in designated tie-down positions. The expanded apron is predominantly anticipated to be utilized by aircraft that will be parked at the Airport for longer periods of time (several days at a time, if not longer). This apron would only be used by transient aircraft staying shorter periods of time when no other parking positions are available.

Auxiliary power usage, through APUs or GPUs, would be the same as described above for Alternative 2A.

This alternative has a net decrease of 0.4 acre of impervious surface and disturbs approximately 0.3 acre of grass within Priority Habitat. The additional spaces meet the need of the Airport more than the previous alternatives in that there are more spaces for larger aircraft, but additional spaces would still be needed after construction. The

cost of this alternative is approximately \$1.1 million. This is a preferred alternative, along with Alternative 3 below.

Build Alternative 3 – Reconfigure Southwest Ramp (Preferred Alternative)

The sixth and final alternative (**Figures 3-26 and 3-27**) includes the reconfiguration of the current space of the Southwest Ramp. The Southwest Ramp is located just south of Taxiway D and contains approximately 48 tie-down spaces (also identified as the Transient Tie-Down Ramp). The Southwest Ramp also includes the area southeast of the tie-down spaces, where there are currently four buildings and a parking lot with a taxilane that provides access to additional existing hangars. This alternative includes the removal of the four existing buildings, parking lot, and adjacent vegetated areas and provides a completely paved apron area. Three of the four buildings are currently used for equipment storage which the Airport has determined can be eliminated or accommodated elsewhere. The fourth building is owned by the tenant of a leased parcel, and the lease's term ends in 2025. Removal of the four buildings would reduce hangar space by approximately 21,700 square feet.

The new apron area would accommodate approximately 33 General Aviation aircraft, allowing larger aircraft to park on the existing apron. Adjacent to the pavement would be a 56-space parking lot for those who need to access their tie-downs or hangars. The apron would be accessed via existing taxilanes from the apron. All aircraft would park in designated tie-down positions. The expanded apron is predominantly anticipated to be utilized by aircraft that will be parked at the Airport for longer periods of time (several days at a time, if not longer).

Reconfiguring this apron would add approximately 2.2 acres of new impervious surface and temporarily disturb 0.2 acre of vegetated land, mostly within non-Priority Habitat. The layout shown on the figures would provide an additional 4.44 acres or 193,400 square feet of apron space with 33 Group I aircraft tie-downs. This is somewhat more than current demand dictates and is proposed to provide the Airport with the flexibility to adjust the size and configuration of the newly paved Southwest Ramp to accommodate the Airport's demands closer to the time of construction. This alternative meets the needs of the Airport by providing additional parking space for the Airport. Because it meets aircraft parking needs, it is a preferred alternative. The cost of design and construction of this alternative would be approximately \$4.2 million.

3.2 PROPOSED ACTION

The Proposed Action is summarized below in **Table 3-4**.

Table 3-4 Proposed Action

Construction Year	Project	Preferred Alternative	Description	Total Cost ¹
2021	Business Park Lots 34 and 38	1	Obtain approvals for previously developed Business Park lots; 1.2 acres impervious surface in Priority Habitat	NA
2022	Improve Fuel Farm Access and Safety	3	Convert gravel fuel farm pad to pavement and pave gravel access road, replace oil water separator	830,000
2022	Aircraft Hangar Development	2	Construct two new hangars; 1.0 acre new impervious in Priority Habitat	\$6.7 million
2023	Airspace Vegetation Management, Runway 6-24	4A, 4B	Remove tree obstructions. Including Runway 15-33, would be 33.1 acres, 29.9 on airport or easements (although easement status is uncertain), 3.2 acres in State Forest/no easement	\$1.3 million
2023	Runway 15-33 and Taxiway E Reconstruction, and Vegetation Management	5-5	Reconstruct runway and taxiway, remove shoulders, displace Runway 15 threshold 275'; extend and reconfigure taxiway; net removal of 6 acres impervious	\$10.4 million
2028	Terminal Building Renovation	7-1A	Construct miscellaneous terminal building improvements, mainly within existing terminal use areas	\$16.9 million
2029	Aircraft Parking and Movement Areas	9-2B, 9-3	Construct new stub taxiway to Southeast Ramp; remove four buildings and expand apron area within Southwest Ramp	\$5.3 million
2030	Access Road Improvements	8-1	Construct a right-turn lane on Airport Road exiting Airport	\$608,000

1. Total cost includes both design and construction estimates.

4 AFFECTED ENVIRONMENT

4.1 INTRODUCTION

This chapter describes the environmental and social settings of the proposed Projects, Martha's Vineyard Airport, and the surrounding area. Information pertaining to the affected environment was obtained through on-site investigations, a review of published information, agency correspondence, and discussions with Airport personnel and public officials. The information presented herein serves as a basis for the assessment of environmental, social, and economic consequences (refer to Chapter 5) associated with the Projects.

This chapter fulfills the requirements specified in the Massachusetts Environmental Policy Act (MEPA) 301 CMR 11.00 and National Environmental Policy Act (NEPA). The resource categories are consistent with MEPA and with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The following resource categories are evaluated:

- Topography, Geology, and Soils
- Water Resources
- Coastal Resources
- Air Quality
- Climate and Greenhouse Gas Emissions
- Natural Resources and Energy Supply
- Noise
- Biological Resources
- Surface Transportation
- Scenic Qualities, Open Space and Recreational Resources
- Historic and Archaeological Resources
- Section 4(F) Resources
- Land Use
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
- Hazardous Materials, Solid Waste and Pollution Prevention

4.2 PROJECT SETTING

Martha's Vineyard Airport (MVY or "the Airport") is a public airport located at 71 Airport Road in West Tisbury and Edgartown, Massachusetts with both general aviation and passenger airline (air carrier) activity. The airport is located on 688 acres with a variety of facilities. See Chapter 1 for more information regarding facilities, air carriers, and aircraft operations.

According to the US Census Bureau, West Tisbury had a population of 2,740 in 2010, with estimates of 2,306 between 2012 and 2016. Edgartown had a population of 4,067 in 2010 with an estimated population of 4,247 between 2012 and 2016. The Airport is located in the LI (light industrial) zone in West Tisbury and the B-III (light manufacturing and light industrial) and B-IV (aviation facilities, storage of heavy equipment) zones in Edgartown. The land surrounding the airport in West Tisbury is zoned as

rural residential and zoned as single family residential in Edgartown. Much of the surrounding land to the North, East, and West of the Airport is undeveloped, with residential development south of the Airport.

The 6 Airport is proposing several airport improvement Projects, addressed in the annual Capital Improvement Plan (CIP). The primary purpose of the proposed Projects is to meet aviation demand and improve safety by bringing the airport more in line with FAA safety standards and guidelines.

4.3 TOPOGRAPHY, GEOLOGY, AND SOILS (MEPA/NEPA)

The topography at the Airport is relatively flat with a general gradient towards the south. According to Massachusetts GIS contour data, the northern portion of the airport is at an elevation of approximately 59 feet, and the southern portion is at an elevation of approximately 49 feet. According to the US Geologic Survey, the surficial geology underlying the Airport consists of coarse glacial stratified deposits.

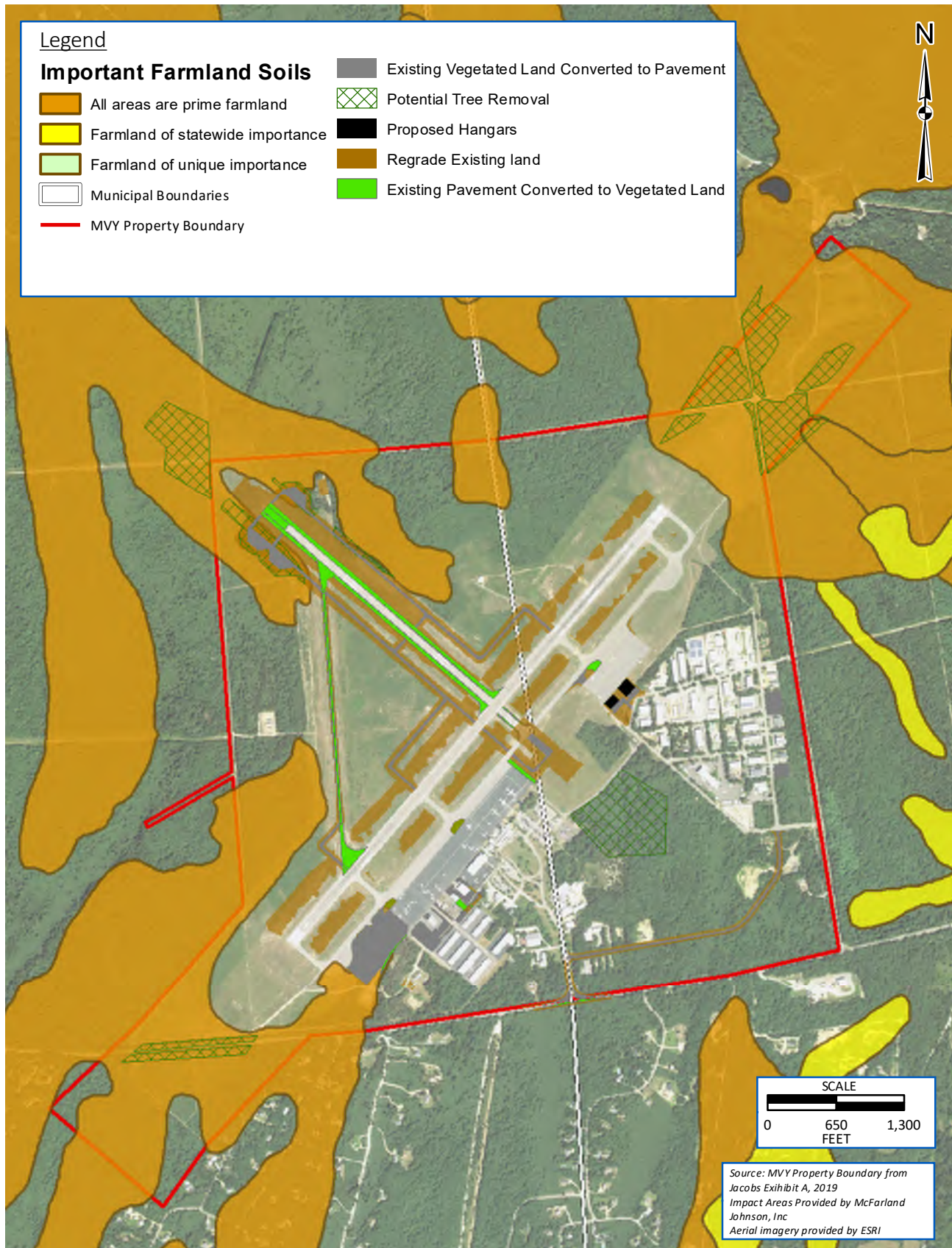
A review of the Natural Resource Conservation Service (NRCS) soil survey data, accessed via the Web Soil Survey (WSS), shows there are two primary soil units mapped at the Airport. The infield soils are mapped as Carver loamy coarse sand 0-3 percent slopes, accounting for approximately 586 acres. The areas around Runway ends 6, 15, and 24 are mapped as Riverhead sandy loam 0-3 percent slopes.

The Agriculture and Food Act of 1981, Public Law 97-98, contained the Farmland Protection Policy Act (FPPA), which regulates Federal actions with the potential to convert farmland to non-agricultural uses. The FPPA requires Federal agencies to consider the adverse effects their programs may have on the preservation of farmland and to review alternatives that could minimize any unnecessary and irreversible conversions of farmland.

If the proposed Federal project action involves the acquisition of farmland that would be converted to nonagricultural use, it must be determined whether any of that land is eligible for protection under the FPPA. Land subject to the provisions of the FPPA is not necessarily actively farmed. Rather, the FPPA applies to the soils present on a property. Farmland protected by the FPPA is either prime farmland, unique farmland, or farmland of statewide or local importance. The FPPA does not apply to land that has already been committed to non-agricultural development in a zoning ordinance or comprehensive plan or prime farmland planned for industrial or commercial use.

According to the NRCS WSC, accessed on April 3, 2018, approximately 200 acres, 25 percent, of the Airport is classified as prime farmland soils. Prime farmland soils extend outside Airport property in areas of potential vegetation management as well. None of the land on or around Airport property is actively farmed. Mapped farmland soils are shown on **Figure 4-1**.

Figure 4-1: Farmland Soils



Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\4-1_farmland_soils.mxd

4.4 WATER RESOURCES (MEPA/NEPA)

4.4.1 Surface Waters

The U.S. Army Corps of Engineers (Army Corps) regulates surface waters under Section 10 of the Rivers and Harbors Appropriation Act (RHA) that are considered to be traditional navigable waterways (TNW) as defined in the Act. The Army Corps also regulates certain surface waters, including wetlands, under Section 404 of the Clean Water Act (CWA). On April 21, 2020, the EPA and the Army Corps published the Navigable Waters Protection Rule in the Federal Register to finalize a revised definition of “Waters of the U.S.” under the CWA. The rule streamlined the definition of Waters of the U.S. to include four simple categories of jurisdictional waters, including surface waters and wetlands, and providing clear exclusions for water features that have not been traditionally regulated, and provides regulatory definitions for terms previously undefined. This final rule became effective on June 22, 2020.

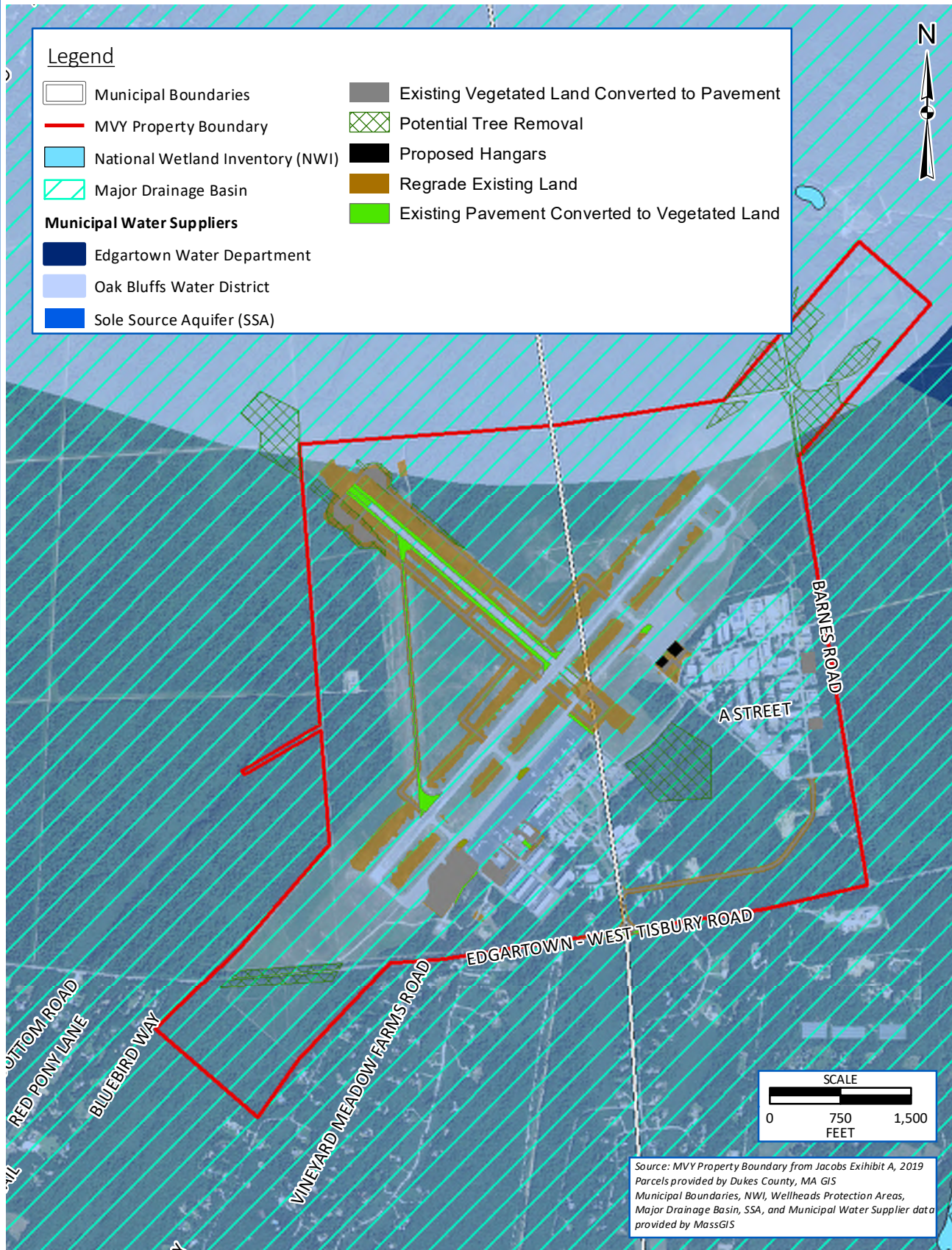
The Massachusetts Department of Environmental Protection (MassDEP) regulates impacts to surface waters, including wetlands, within the state under the Massachusetts Wetlands Protection Act enacted under Massachusetts General Law (M.G.L.) Chapter 131, Section 40. Surface water protections afforded under the Massachusetts Wetlands Protection Act include lands under water bodies, waterways, salt ponds, fish runs, and the ocean. Protections are further extended to include 100-year floodplains and the “Riverfront Area”. The Riverfront Area is designated and defined as a 200-foot-wide zone on either side of perennial river or stream measured from the mean annual high-water line. In certain “densely developed areas”, as designated by the Secretary of the Executive Office of Environmental Affairs, the Riverfront Area protection area is limited to 25 feet.

Streams are also regulated through the Town of West Tisbury Wetlands Protection Bylaw and the Edgartown Wetlands Bylaw, as discussed below in Section 4.4.3.

The potential impact areas for the Projects on the Airport property were reviewed for the presence of wetlands and surface waters in September 2017 and, in vegetation management areas, in October 2019. No streams, ponds, lakes, or other surface waters were found on airport property. There is one constructed extended detention basin that frequently has standing water. The closest surface water bodies are a small pond within the State Forest, approximately 2,000 feet northeast of the Airport; Oyster Pond, approximately 3,000 feet southeast of the Airport; and Tisbury Great Pond and associated coves, approximately one mile southwest of the Airport.

Water resources are shown on **Figure 4-2**.

Figure 4-2: Water Resources



Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\4-2_WaterResources.mxd

4.4.2 Floodplains

Floodplains are land areas associated with bodies of water (lakes, rivers, and wetlands) that are likely to become inundated during a flooding event. The area or magnitude of a flood will vary according to the magnitude of the storm event as determined by the storm interval occurrence. Executive Order 11988, Floodplain Management, directs all federal agencies to avoid the direct and indirect support of floodplain development wherever there is a practicable alternative.

A Flood Insurance Study (FIS) for West Tisbury was published by FEMA on July 20, 2016. According to the Flood Insurance Rate Map panels depicting the Airport (FIRM 25007C0113J), there are no mapped surface waters or regulated floodplains located on Airport property.

4.4.3 Wetlands

Wetlands are regulated by the Army Corps through Section 404 of the Clean Water Act, as previously referenced in Section 4.4.1.

The MassDEP also regulates wetlands within the state under the Massachusetts Wetlands Protection Act.

Wetlands are also regulated through the Town of West Tisbury Wetlands Protection Bylaw and the Edgartown Wetlands Bylaw. The Edgartown Wetlands Protection By-Law was enacted in 1985 and expands the regulated buffer zone around freshwater and coastal resource areas to 200 feet; around 100-year floodplain to 100 feet; and around certain named ponds, and any wetlands or streams draining into those ponds, to 300 feet. The Town of West Tisbury Wetlands Protection Bylaw (2004) and Wetlands Protection Bylaw Regulations, adopted in 2006, have similar provisions as the state Wetlands Protection Act and regulations, but provide additional protections for isolated resource areas such as vernal pools.

Section 401 of the CWA provides states with the authority to ensure that federal agencies do not issue permits or licenses that violate their water quality standards. The MassDEP implements Section 401 compliance through a certification process called Water Quality Certification. The MassDEP is responsible for providing Water Quality Certification reviews for Army Corps Section 404 Individual Permits.

The 2016 Master Plan Update (MPU) stated that field surveys conducted over the course of 2011 and 2012 confirmed that there were no jurisdictional wetlands on Airport property. The potential impact areas for the on-airport improvement Projects were reviewed for the presence of wetlands in September 2017 and, in vegetation management areas, in October 2019. One location, an extended detention basin just east of the terminal area and access road, appeared to have wetland vegetation and hydrology. According to the state wetland regulations (310 CMR 10.02(2)(c)), stormwater treatment practices constructed after November 18, 1996 “do not by themselves constitute Areas Subject to Protection under M.G.L. c. 131, s. 40” (the Wetlands Protection Act). Soils mapping and historical aerial imagery indicate the area contained upland soils prior to 1996 and the detention basin was constructed in approximately 1998. It is therefore assumed that it is not a jurisdictional resource area. Further, under the Army Corps Navigable Waters Protection Rule, stormwater control features excavated or constructed in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off are not considered Waters of the U.S.

A potential vegetated wetland occurs in the northern portion of the Runway 24 approach, but it is more than 600 feet from vegetation management proposed for this Project. No other potential wetlands were observed within Project areas or within 200 feet of Project areas.

4.4.4 Groundwater

The U.S. Environmental Protection Agency (USEPA Sole Source Aquifer program was established under the Safe Drinking Water Act (SDWA). According to the EPA, a Sole Source Aquifer is defined as one that supplies at least 50 percent of the drinking water for its service area, and within which there are no reasonably available alternative drinking water sources should the aquifer become contaminated. The Sole Source Aquifer program allows for EPA review of federally funded projects that have the potential to affect designated Sole Source Aquifers and their source areas. The Airport is located over an EPA-designated Sole Source Aquifer that provides the only drinking water for the island of Martha's Vineyard.

The Airport is also located within a state mapped aquifer with a yield of greater than 300 gallons per minutes (gpm) and a transmissivity of 4,000 square feet per day or greater. There is an approved zone II wellhead protection area for the Oak Bluffs Water District in the northern portion of the Airport. The aquifer surface, based on studies published in 1989³ and 1997⁴, is approximately 30 to 50 feet below the ground surface and flows in a southerly to southeasterly direction. (See well monitoring data in Appendix H.) Groundwater resources are shown on **Figure 4-2**.

Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are two man-made chemicals that were commonly used in household and industrial products, and historically in firefighting foams. PFOA/PFOS chemicals have been found in groundwater on and near airport property. For more information on site-specific PFAS, refer to the Hazardous Materials section.

4.4.5 Wild and Scenic Rivers (NEPA)

The Wild and Scenic Rivers Act (Public Law 90-542) describes river areas eligible to be included in a system afforded protection under the Act as free flowing and possessing outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or similar values. There are no federal wild and scenic rivers on or adjacent to Airport property.

4.5 COASTAL RESOURCES (MEPA/NEPA)

The Coastal Zone Management Act (CZMA) of 1972 and its implementing regulations (15 CFR part 930) require that actions undertaken by federal agencies are consistent with approved state coastal zone management programs. The Airport is located in the Cape Cod and Islands coastal zone for Massachusetts; however, it is located in the island's interior and lacks typical coastal features such as beaches, dunes, or coastal banks.

Massachusetts Chapter 91, The Massachusetts Public Waterfront Act, protects and promotes public use of the Commonwealth's tidelands and waterways through a public trust doctrine. Areas protected under

³ Dufresne-Henty (1989). *Final Environmental Impact Report, EOE 6503, Groundwater Management Plan*.

⁴ Rizzo Associates, Inc. (1997). *Phase I – Initial Site Investigation and Tier Classification*.

Chapter 91 include flowed tidelands, filled tidelands, great ponds, and non-tidal rivers and streams, none of which are located in the Project areas

4.6 AIR QUALITY (MEPA/NEPA)

The USEPA is responsible for enforcing the Clean Air Act (CAA) (42 U.S.C. §§ 7401 to 7671q). The CAA was enacted in 1970 and amended in 1977 and 1990 and is the comprehensive federal law regulating air pollutant emissions from stationary and mobile sources. The CAA requires the USEPA under 40 CFR Subchapter C to establish National Ambient Air Quality Standards (NAAQS) that apply throughout the U.S. and its territories (**Table 4-1**). Under the authority granted by the CAA, USEPA has established NAAQS for six contaminants referred to as criteria pollutants: Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Matter (PM), Sulfur Dioxide (SO₂), and Lead (Pb). O₃ is a secondary pollutant, meaning that it is formed from reactions of “precursor” compounds under certain conditions; therefore, O₃ is addressed through analysis of its precursors—volatile organic compounds (VOC) and oxides of nitrogen (NO_x).

The CAA assigns primary responsibility to individual states to assure compliance with the NAAQS. Air quality regions that meet the NAAQS for a criteria pollutant are designated as being in attainment. Areas with poor air quality that do not meet the NAAQS for one or more criteria pollutant are designated by the USEPA as nonattainment areas. When a nonattainment area is redesignated as an attainment area, the CAA requires that a maintenance plan be put in place for a period between 10 to 20 years to ensure continued compliance with the corresponding NAAQS. Therefore, a former nonattainment area is also defined as a maintenance area.

The FAA is responsible for ensuring that federal airport actions conform to the State Implementation Plan (SIP), also known as General Conformity, which protects against regional air pollution impacts. The criteria and procedures for implementing this conformity determination are detailed in Title 40 CFR Part 93, Determining Conformity of Federal Actions to State or Federal Implementation Plans. Compliance is achieved if a proposed action would not cause emissions that exceed de minimis levels defined for the criteria pollutants. Presently, the general conformity rules only apply in areas that have been determined by the USEPA to be in nonattainment or maintenance for the NAAQS. The Airport is located in Dukes County, which has been listed for non-attainment since 2012 for 8-hour ozone levels based on the 2008 standards, but is in attainment based on 2015 standards, as shown in **Table 4-2**.

To meet General Conformity requirements, federal entities must demonstrate that emissions from their actions will not exceed emission budgets established in a state’s plan to attain or maintain the NAAQS. FAA determines whether the proposed project is exempt or on the Presumed to Conform List. Projects that fall within the Presumed to Conform activities do not require an air quality analysis.

Under NEPA, the FAA may be required to prepare detailed air quality analysis for proposed projects whose air quality emissions have the potential to cause violations of the NAAQS for the six criteria pollutants.

Table 4-1 National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Time	Standards	Notes
Carbon Monoxide (CO)	1 hour	35 ppm	Not to be exceeded more than once a year.
	8-hour	9 ppm	Not to be exceeded more than once a year.
Lead (Pb)	Rolling 3-Month Average	0.15 µg/m ³	Not to exceed this level. Final rule October 2008.
Nitrogen Dioxide (NO ₂)	1 hour	100 ppb	The three-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm.
	Annual	53ppb	Not to exceed this level.
Ozone (O ₃)	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, average over three years.
Particulate Matter with a diameter ≤ 10µm (PM ₁₀)	24-hour	150 µg/m ³	Not to be exceeded more than once a year on average over three years.
Particulate Matter with a diameter ≤ 2.5µm (PM _{2.5})	24-hour	35 µg/m ³	The three-year average of the 98th percentile for each population-oriented monitor within an area is not to exceed this level.
	Annual (Primary)	12 µg/m ³	The three-year average of the weighted annual mean from single or multiple monitors within an area is not to exceed this level.
Sulfur Dioxide (SO ₂)	1 hour	75 ppb	Final rule signed June 2, 2010. The three-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed this level.

Table 4-2 Attainment/Nonattainment Designations for Dukes County

Pollutant	Designation
Carbon monoxide (CO)	Attainment
Nitrogen Dioxides (NO ₂)	Attainment
Ozone (Eight-hour, 2008 Standard)	Nonattainment
Ozone (Eight-hour, 2015 Standard)	Attainment
Particulate matter (PM ₁₀)	Attainment
Particulate matter (PM _{2.5})	Attainment
Sulfur Dioxide (SO ₂)	Attainment
Lead (Pb)	Attainment

1 <https://www.epa.gov/green-book>

4.7 CLIMATE AND GREENHOUSE GAS EMISSIONS (MEPA/NEPA)

Scientific measurements show that Earth's climate is warming, with concurrent impacts including warmer air temperatures, sea level rise, increased storm activity, and an increased intensity in precipitation events. Based on Massachusetts-specific climate change predictions prepared by Resilient MA⁵, the following climate-related changes are expected over the next 20 to 30 years:

- **Warming:** Average summer temperatures on Martha's Vineyard are predicted to increase anywhere from 2.6°F to 5.8°F.
- **Precipitation:** Generally throughout Massachusetts, rainfall is expected to increase in spring and winter months, with increasing consecutive dry days in summer and fall. By mid-century on Martha's Vineyard, total precipitation is projected to range from a decline of 1.0 inches to an increase of 3.8 inches per year. .
- **Storms:** Frequency and intensity of storms are expected to increase, which can exacerbate flooding, particularly in the winter when the ground is frozen.
- **Fire:** With increasing consecutive dry days in the summer and fall, the risk of wildfire is greater. Wildfires could threaten human health and property, but may be beneficial for certain habitats on the island and in the vicinity of the airport that are adapted to fire, such as pitch pine/scrub oak stands.
- **Sea level rise and coastal flooding** is not expected to affect the airport given its location in the interior of the island.

⁵ Resilient MA. March 2018. *Massachusetts Climate Change Projections*. www.resilientma.org.

Increasing concentrations of greenhouse gas (GHG) emissions in the atmosphere affect global climate. GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

FAA Order 1050.1F lists Climate as one of the resource categories to consider in NEPA studies and documents, and the 1050.1F Desk Reference⁶ includes a chapter on climate. However, the FAA has not identified a significance threshold for GHG emissions, as there is no current accepted method of determining the level of significance applicable to airport projects given the small percentage of emissions they contribute.

The MEPA GHG Policy⁷ requires projects to be reviewed and analyzed for reasonably foreseeable climate change impacts, including additional GHG emissions, and effects, such as predicted sea level rise. The Policy requires that certain projects undergoing review by the MEPA office quantify their GHG emissions and identify measures to avoid, minimize, and mitigate such emissions. The policy also requires proponents to evaluate project alternatives that may result in lower GHG emissions, and to quantify the impact of proposed mitigation in terms of emissions and energy savings.

4.7.1 Existing Sources of Emissions

A variety of GHG emission sources are associated with the operations at the Airport. GHG emissions are linked to equipment and energy use owned by the Airport and with equipment that is operated by its tenants and the general public. Airport-owned sources of emissions include ground service equipment, fleet vehicles, parking lots, buildings, and stationary sources such as emergency generators. Tenant emissions are associated with the operation of the in-terminal restaurant, aircraft, ground service equipment, and fleet vehicles. Emissions associated with the general public include vehicle travel to and from the Airport.

Emissions from Airport buildings are associated with electricity consumption and fuel consumption. Lighting, plug loads, fans, and pumps are all examples of building equipment that consume electricity. Kitchen equipment and boilers for space heating and water heating are sources of fuel combustion. The Airport is actively pursuing several initiatives that could reduce GHG emissions. These are enumerated in Section 4.8 below.

The Projects would not increase or change the number of passengers that would utilize the Airport in the future and would not affect the numbers of aircraft operations or their flight patterns. Taxiway and aircraft apron improvements would have a small effect on aircraft movement patterns on the ground, but in many instances will reduce taxi routes and taxi times. For this reason, emissions of aircraft ground movements were modeled using the FAA-approved Aviation Environmental Design Tool (AEDT) emissions model. The emissions under existing conditions are reported in Chapter 5 with the model results.

⁶ FAA Office of Environment and Energy (Feb. 2020). *1050.1F Desk Reference Version 2*. Accessed 11/13/2020 at https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_policy_guidance/policy/faa_nepa_order_desk_ref/media/desk-ref.pdf

⁷ Massachusetts Executive Office of Energy and Environmental Affairs. (2010). *Summary of the Final Revisions to the MEPA Greenhouse Gas Emissions Policy and Protocol*.

Improvements to vehicular roadways, if any, would not increase traffic and may likely reduce vehicle idle times. As a result, emissions associated with vehicular traffic were not inventoried or evaluated for these Projects.

4.8 NATURAL RESOURCES AND ENERGY SUPPLY (NEPA)

In accordance with FAA Order 1050.1F, this section provides an overview of the Airport's existing consumption of natural resources and energy for the purpose of determining whether the construction and/or operation of the proposed Projects would cause demands on such resources in exceedance of future supplies.

The Airport drinking water is supplied via groundwater from the sole source aquifer. All water comes through the Oak Bluffs Water District and, combined with an interconnection with the Edgartown Water Department, provides a stable water supply for the Airport. The Airport has at least 15 service connections serving 25 or more people. The water distribution system is operated and maintained by the Martha's Vineyard Airport Water Department.

The Airport also provides wastewater services to its facilities and tenants with an on-site wastewater treatment plant. The Martha's Vineyard Wastewater Treatment Facility has been in operation since the early 1940's. It was built to serve the Naval Air Station that was created during the war. The Wastewater Treatment Facility is located on approximately five acres of fenced-in land located in West Tisbury near the southwest corner of the airport.

The electricity provider for the island is Eversource, with power supplied by undersea cables from the mainland power grid. Diesel generators on the island provide backup power.

The Airport also actively pursues energy conservation and renewable energy through several mechanisms:

- Investment in energy credits in an off-island community solar facility
- Working with the Cape & Vineyard Electric Cooperative to explore opportunities to install solar panels on existing buildings and on parking lot canopies
- Participating in local committees addressing climate and energy concerns
- Meeting with statewide groups working to facilitate adoption of electric airplanes
- Working with the Cape Light Compact regarding energy audits

4.9 NOISE (MEPA/NEPA)

Aircraft noise emissions, inherent to the operation of an airport, can adversely impact land use compatibility between an airport and surrounding properties, particularly in the presence of noise-sensitive receptors. Churches, hospitals, schools, amphitheaters, and residential districts are receptors that are sensitive to elevated noise levels. Recreational areas and some commercial uses are moderately sensitive to elevated noise levels. Potential noise receptors in the vicinity of the Airport include the State Forest and associated recreational trails to the north, east, and west, and residential development to the south.

The Martha's Vineyard Airport Commission initiated a "Noise Analysis Mitigation Program" in 2003 as a voluntary abatement program aimed at reducing noise impacts to residents on the island. There was additional noise monitoring conducted in 2012 (by others) in preparation of the 2016 MPU. Noise measurements were compared to those collected in 1999 to determine how noise levels from aircraft operations had changed over time. In addition to the measurement location at the Airport, there were five off-airport noise measurement locations, one on Bluebird Way approximately 4,000 feet southwest from the end of the main Runway 6-24, one at a residence on Pond Lane approximately 5,000 feet southwest from the end of runway 6-24, one on Hopps Farm road approximately 9,500 feet northwest from the end of the crosswind Runway 15-33, one at a residence on Ryan's way approximately 7,500 feet northeast from the end of Runway 6-24, and one on Oyster Pond Road approximately 8,800 feet southeast from Runway 15-33. Results of the study showed that DNL noise levels at all five residential locations were below the FAA residential noise impact level of 65dBA. Results also indicated a reduction in noise levels over 10 years, in part due to the noise abatement procedures.

4.10 BIOLOGICAL RESOURCES (MEPA/NEPA)

Biotic resources refer to the various types of flora (plants) and fauna (fish, birds, reptiles, amphibians, mammals, etc.), including state and federally listed threatened and endangered species, in a particular area. It also encompasses the habitats supporting the various flora and fauna including rivers, lakes, wetlands, forests, and other ecological communities. Airport projects can affect these ecological communities and thereby affect vegetation and wildlife populations.

4.10.1 Plant and Animal Habitat

Land cover types for the Airport and the broader landscape context are shown in **Figure 4-3**. The Massachusetts Natural Heritage and Endangered Species Program (NHESP) has developed natural community classifications for habitats within the Commonwealth⁸. The following habitat descriptions are based on these classifications and fieldwork conducted from 2017 to 2020. Responding to a resource agency request, natural communities within proposed vegetation management areas were formally delineated and mapped in 2020, and are shown on **Figures 4-4, 4-5, 4-6, and 4-7**. Tree heights as of 2019 are also shown on these figures.

The Airport operates under a Habitat Management Plan, developed as part of the Conservation and Management Permit #004-039 DFW, that was completed in 2005, and outlines habitat types, maintenance, and monitoring requirements.

The following natural communities are found in the Project area: Cultural Grassland, Sandplain Grassland, Coastal Forest/Woodland, Sandplain Heathland, Scrub Oak Shrubland, Pitch Pine – Oak Forest/Woodland, and Pitch Pine – Scrub Oak Community.

Cultural Grasslands are grasslands maintained by regular mowing, without which they would succeed into woody-stemmed habitat. Cultural grasslands are present in the runway and taxiway safety areas, around buildings, and in certain other areas on the airfield. Sandplain Grasslands are found in portions of the open airfield where sandy conditions encourage warm-season grasses and more sparse growth.

⁸ Swain, P.C. 2020. Classification of the Natural Communities of Massachusetts. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Westborough, MA.

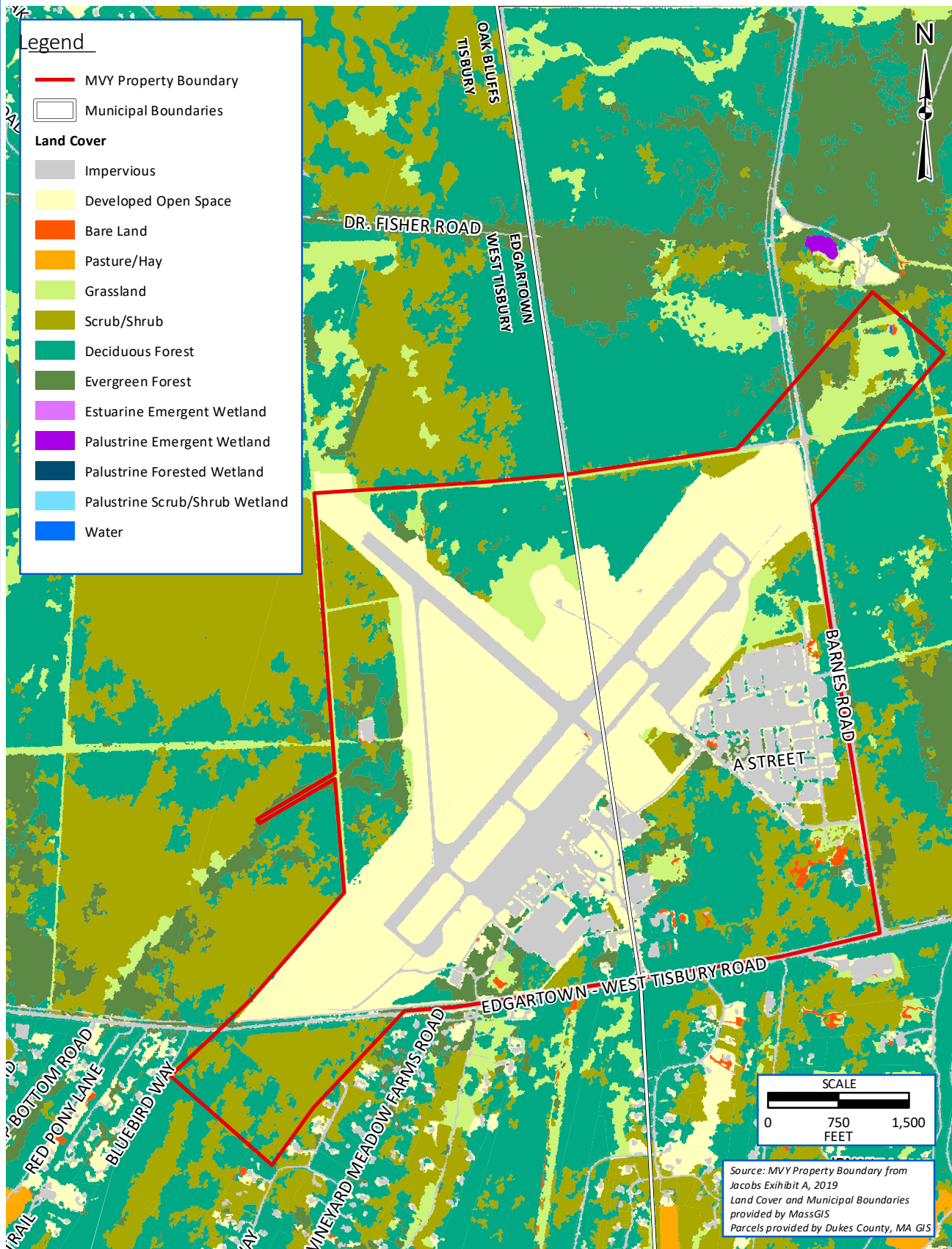
Surveys conducted over the past three years for this Project found the following common species in the grasslands: little bluestem (*Schizachyrium scoparium*), red and sheep fescues (*Festuca rubra* and *F. ovina*), dwarf cinquefoil (*Potentilla canadensis*), poverty grass (*Danthonia spicata*), churchmouse three awn (*Aristida dichotoma*), panic grasses (*Dichanthelium dichotomum* and *D. depauperatum*), gray goldenrod (*Solidago nemoralis*), sickle-leaved golden aster (*Pityopsis falcata*), wild indigo (*Baptisia tinctorica*), orange grass (*Hypericum gentianoides*) and sandplain aster (*Eurybia (Aster) spectabilis*).

Sandplain Heathland at the airport is dominated by dwarf shrubs such as low-bush blueberries (*Vaccinium angustifolium* and *V. pallidum*), scrub oak (*Quercus ilicifolia*), bearberry (*Arctostaphylos uva-ursi*), and black huckleberry (*Gaylussacia baccata*). This habitat type can be found along the fire access roads abutting the northern and western sides of the Airport, northeast of Runway 15-33, and much of the open airfield outside of frequently mowed areas.

Scrub Oak Shrubland habitat is found in many parts of the Airport and its surroundings, with larger patches in the northern and western portions of the property and in the runway approaches. A mitigation area consisting of shrubland habitat, located southwest of Runway end 6 and south of Edgartown-West Tisbury Road, was a requirement of the Conservation and Management Permit issued in 2005 and was established in 2006. Dominant species in this habitat include lowbush blueberry (*Vaccinium angustifolium*), black huckleberry (*Gaylussacia baccata*), and grasses. Long-term management for this habitat type in the mitigation area includes mowing periodically to allow shrub growth and to discourage tree species from growing. The mowing interval for any given patch may be from one to several years and depends on the vegetation types and heights.














The outer portions of airport property consist mainly of mixed oak and pitch pine forested habitat. The more undisturbed habitats are predominately oak trees, with white oak (*Quercus alba*), post oak (*Quercus stellate*), and black oak (*Quercus velutina*) most common. Pitch pine is found in more disturbed ground, such as along fire access roads and former plantations. The forest understory includes scrub oak, black huckleberry, little bluestem, bracken fern (*Pteridium aquilinum*), striped wintergreen, and dewberry. White pine (*Pinus strobus*) stands occur in previously disturbed areas within the Runway 24 approach.

Figure 4-3: Land Cover - Existing Habitat



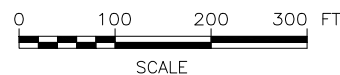
Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\4-3_LandCover-Habitat.mxd




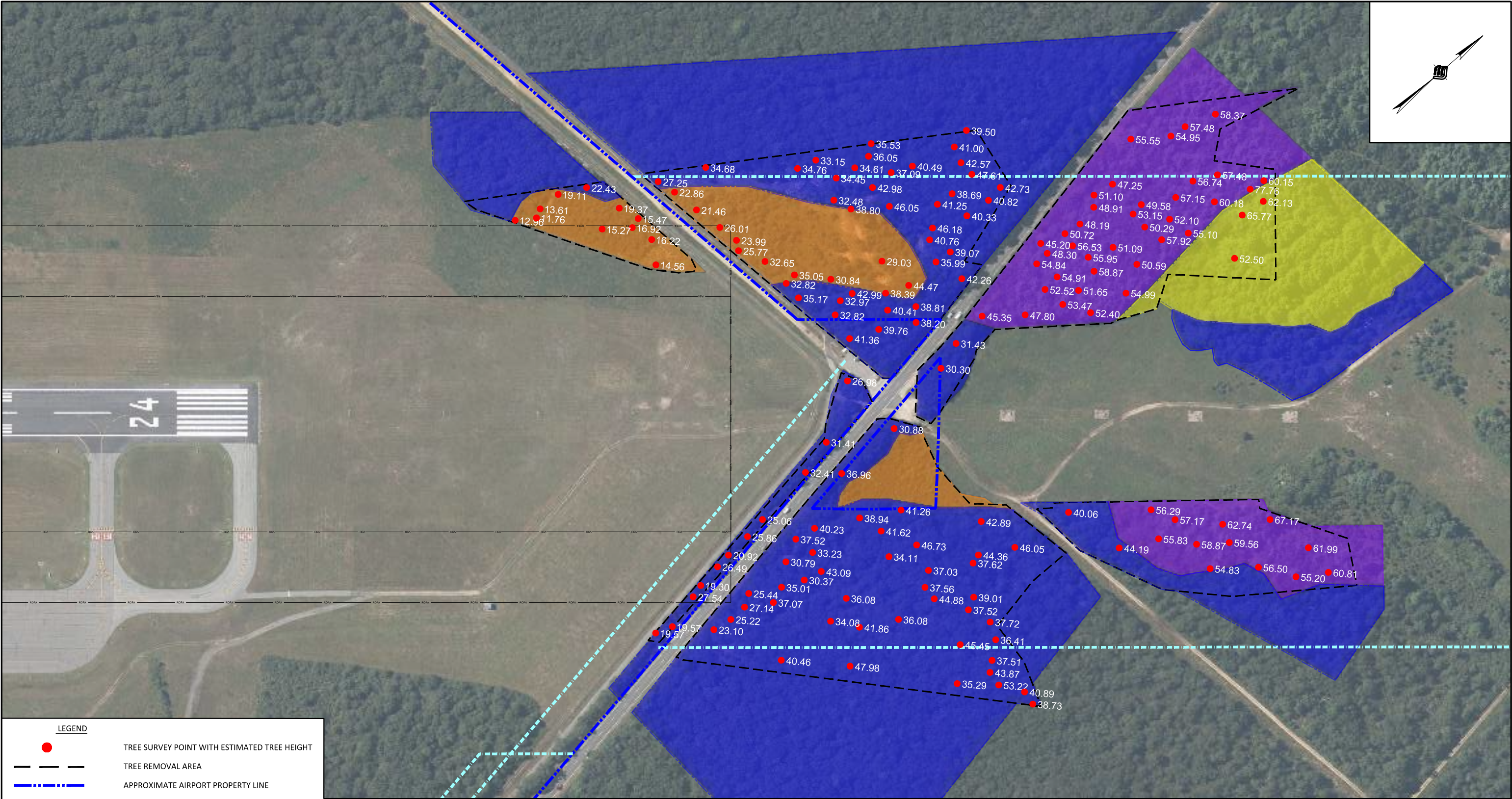
LEGEND	
	TREE SURVEY POINT WITH ESTIMATED TREE HEIGHT
	TREE REMOVAL AREA
	APPROXIMATE AIRPORT PROPERTY LINE
	APPROXIMATE EASEMENT LINE
	RUNWAY SAFETY AREA
	RUNWAY OBJECT FREE AREA
	MOW AREA
	COASTAL FOREST/WOODLAND
	PITCH PINE - OAK FOREST/WOODLAND HABITAT
	PITCH PINE - SCRUB OAK COMMUNITY
	SCRUB OAK SHRUBLAND
	SUCCESSIONAL WHITE PINE FOREST
	MIXED SUCCESSIONAL FOREST

NOTES:

1. NATURAL COMMUNITY MAPPING FROM FIELD STUDIES CONDUCTED BY GZA GEOENVIRONMENTAL, INC. IN 2020. MCFARLAND JOHNSON MADE MINOR CHANGES TO EXTEND COMMUNITY MAPPING TO LIMITS OF CLEARING.
2. TREE HEIGHTS ESTIMATED BY THE DIFFERENCE BETWEEN SURVEYED TREE-TOP ELEVATIONS AND LIDAR GROUND ELEVATIONS.

**FINAL EIR/EA**

					MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT	
	REV	DATE	DESCRIPTION	BY	NATURAL COMMUNITY CLASSIFICATIONS - RUNWAY 6	
	 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301			SCALE: 1" = 100'	DESIGN: SRS	4-4
				DRAWN: DMP	PROJECT:18226.07	
				CHECKED: MTO	DATE: NOVEMBER 2020	



●

TREE SURVEY POINT WITH ESTIMATED TREE HEIGHT

TREE REMOVAL AREA

.....

APPROXIMATE AIRPORT PROPERTY LINE

APPROXIMATE EASEMENT LINE

RSA

RUNWAY SAFETY AREA

RDFA

RUNWAY OBJECT FREE AREA

MOW AREA

COASTAL FOREST/WOODLAND

PITCH PINE - OAK FOREST/WOODLAND HABITAT

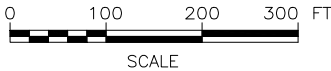
PITCH PINE - SCRUB OAK COMMUNITY

SCRUB OAK SHRUBLAND

SUCCESSIONAL WHITE PINE FOREST

MIXED SUCCESSIONAL FOREST

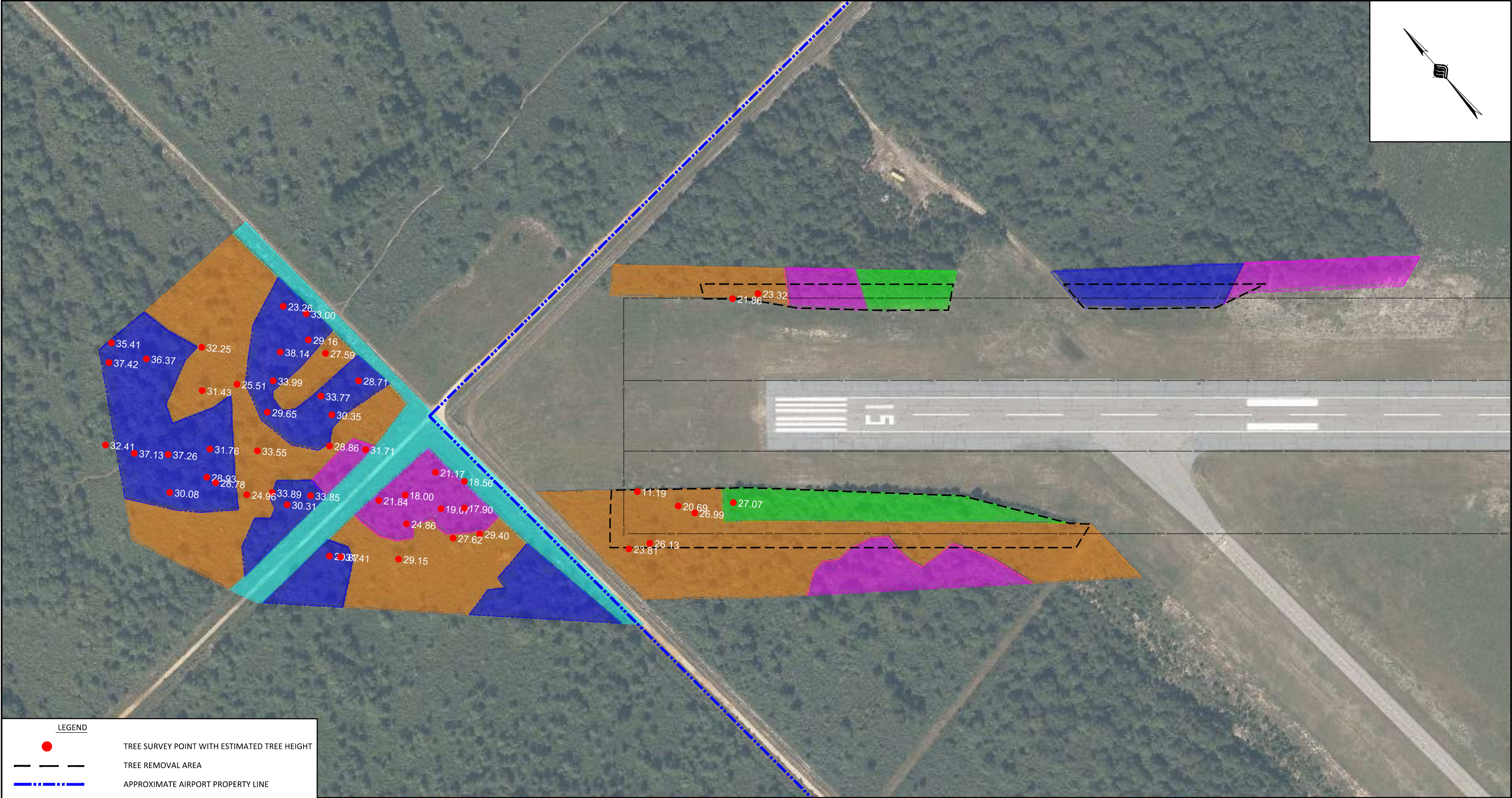
- NOTES:
- NATURAL COMMUNITY MAPPING FROM FIELD STUDIES CONDUCTED BY GZA GEOENVIRONMENTAL, INC. IN 2020. MCFARLAND JOHNSON MADE MINOR CHANGES TO EXTEND COMMUNITY MAPPING TO LIMITS OF CLEARING.
 - TREE HEIGHTS ESTIMATED BY THE DIFFERENCE BETWEEN SURVEYED TREE-TOP ELEVATIONS AND LIDAR GROUND ELEVATIONS.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

						<div><div><div></div><div>McFarland Johnson</div><div>53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301</div></div></div>
REV	DATE	DESCRIPTION			BY	<div><div><div><div>MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS</div><div>ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT</div><div>NATURAL COMMUNITY CLASSIFICATIONS - RUNWAY 24</div></div></div><div><div>SCALE: 1" = 100'</div><div>DESIGN: SRS</div><div>DRAWN: DMP</div><div>PROJECT: 18226.07</div><div>CHECKED: MTO</div><div>DATE: NOVEMBER 2020</div></div><div>4-5</div></div>



●

TREE SURVEY POINT WITH ESTIMATED TREE HEIGHT

TREE REMOVAL AREA

APPROXIMATE AIRPORT PROPERTY LINE

APPROXIMATE EASEMENT LINE

RSA

RUNWAY SAFETY AREA

Rdfa

RUNWAY OBJECT FREE AREA

MOW AREA

COASTAL FOREST/WOODLAND

PITCH PINE - OAK FOREST/WOODLAND HABITAT

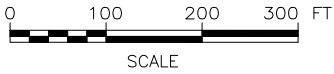
PITCH PINE - SCRUB OAK COMMUNITY

SCRUB OAK SHRUBLAND

SUCCESSIONAL WHITE PINE FOREST


MIXED SUCCESSIONAL FOREST

- NOTES:
- NATURAL COMMUNITY MAPPING FROM FIELD STUDIES CONDUCTED BY GZA GEOENVIRONMENTAL, INC. IN 2020. MCFARLAND JOHNSON MADE MINOR CHANGES TO EXTEND COMMUNITY MAPPING TO LIMITS OF CLEARING.
 - TREE HEIGHTS ESTIMATED BY THE DIFFERENCE BETWEEN SURVEYED TREE-TOP ELEVATIONS AND LIDAR GROUND ELEVATIONS.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

					MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT		
	REV	DATE	DESCRIPTION	BY	NATURAL COMMUNITY CLASSIFICATIONS - RUNWAY 15		
	<div><div></div><div><div>McFarland Johnson</div><div>53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301</div></div></div>						
				SCALE: 1" = 100'	DESIGN: SRS	4-6	
				DRAWN: DMP	PROJECT:18226.07		
				CHECKED: MTO	DATE: NOVEMBER 2020		

4.10.2 Threatened and Endangered Species

4.10.2.1 Federal

The federal Endangered Species Act (ESA) directs all federal agencies to work to conserve federally listed endangered and threatened species, and to use their authorities to further the purposes of the ESA. Section 7 of the ESA, titled “Interagency Cooperation,” is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any federally listed species. Endangered species are those that are in danger of extinction throughout their range or a significant portion of their range. Threatened species are those that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. Candidate species are species for which the United States Fish and Wildlife Service (USFWS) has sufficient information on the biological vulnerability and threats to support issuance of a proposal list, but issuance of a proposed rule is currently precluded by higher priority listing actions. Candidate species do not receive substantive or procedural protection under the ESA. However, USFWS encourages federal agencies and other appropriate parties to consider these species in the planning process.

An Official Species List from the USFWS was obtained on November 12, 2020 and is included in Appendix F. The list indicates that the threatened northern long-eared bat (*Myotis septentrionalis*) may be present in the vicinity of the Airport. The correspondence indicated that there are no critical habitats within the Airport property.

The northern long-eared bat was listed as threatened under the ESA in May 2015. This species is found across much of the eastern and north central U.S. and into Canada. The primary threat to the northern long-eared bat is white-nose syndrome. Populations of the northern long-eared bat in the northeastern U.S. have declined by 99 percent since symptoms of white-nose syndrome were first observed in 2006⁹.

A final 4(d) rule, published in the Federal Register on January 14, 2016, describes measures necessary to provide for the conservation of the northern long-eared bat. Tree removal within 150 feet of a known occupied maternity roost tree from June 1 through July 31 or within 0.25 mile of a hibernaculum at any time is considered an “incidental take” and is prohibited. The NHESP, in its list of state-listed species in the vicinity of the airport provided on August 17, 2020, did not include northern long-eared bat. In their Verification Letter dated November 13, 2020, the U.S. Fish and Wildlife Service determined the proposed work “...is consistent with activities analyzed in the PBO” [Programmatic Biological Opinion dated January 5, 2016]. (See Appendix F for agency correspondence.) It is concluded that there are unlikely to be maternity roost trees within 150 feet of the Projects and no hibernacula within 0.25 miles.

4.10.2.2 State

The Massachusetts Endangered Species Act (MESA) of 1990 (M.G.L. c131A) protects rare species and their habitats by prohibiting “take” of any plant or animal designated as endangered, threatened, or of special concern. As part of this Act, any species that is extant in Massachusetts and is listed by the

⁹ U.S. Fish and Wildlife Service Midwest Region (2020). *Northern Long-Eared Bat, Myotis septentrionalis*. <https://www.fws.gov/midwest/endangered/mammals/nleb/nlebfactsheet.html>

Federal Endangered Species Act, must also be included on this State list. The NHESP also maps Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife, and the Airport is located partly within both kinds of habitat (**Figure 4-8**).

Consultation with the NHESP in 2012 for the MPU identified 28 rare species potentially occurring at the Airport. Surveys for the rare species identified in the NHESP response were conducted in 2012 and 2013, whereupon 21 rare species were observed. Observed species included three species of plants, two species of birds, 15 species of moths, and the purple tiger beetle (*Cicindela purpurea*).

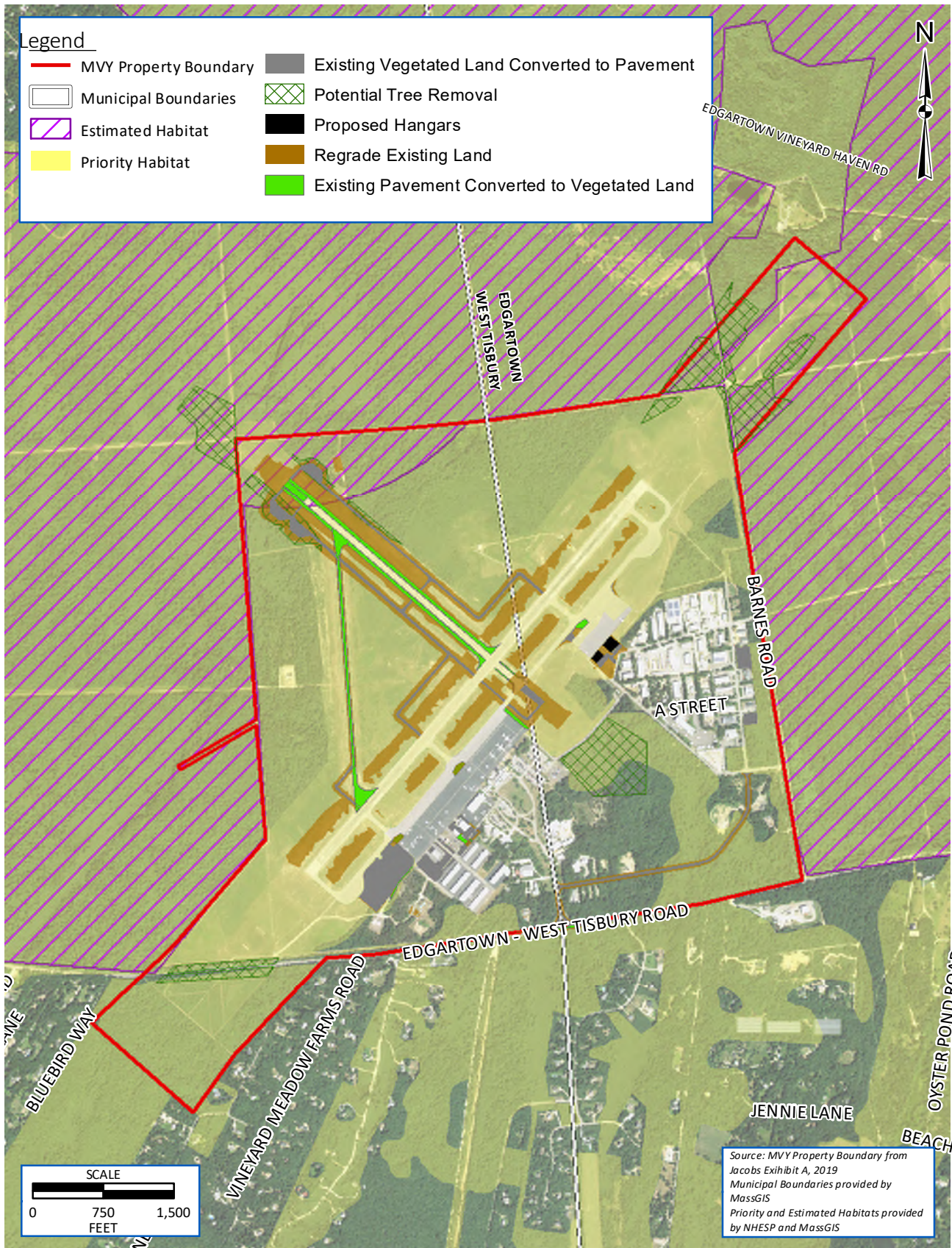
The Airport contacted the NHESP again in 2020 for an updated list of state-listed rare species. **Table 4-3** below includes the species identified by the NHESP on August 17, 2020 as occurring within the vicinity of the site.

Supplemental rare plant surveys were conducted in 2017 and 2020 within the current CIP Projects' potential impact areas that were not originally included in the MPU. These surveys found the following:

- In areas of overlap with the 2012-2013 surveys, rare plant populations were generally in the same locations and densities.
- In the new areas surveyed, populations of sandplain blue-eyed grass were found in several areas and papillose nut sedge in one area.
- Host plants for rare moth species were found in most of the proposed vegetation management areas. There are 20 rare Lepidoptera (moths and butterflies), most of which are moths. The most important host plant species include scrub oak and blueberry/ericaceous shrubs, which are abundant in most vegetation management areas. Other host plant species which also occur in vegetation management areas include other kinds of oaks, cherry, shadbush, and pines. Host plant are particularly abundant within the native coastal forest communities found within in the Runways 6, 15, 33, and parts of the Runway 24 approach areas (see Section 4.10.1 and **Figures 4-4 through 4-7**). Other portions of the Runway 24 approach (**Figure 4-5**) are dominated by white pines and have few other species and have little habitat value for rare moth and butterfly species.

The 2005 Conservation and Management Permit initially permitted 14 improvement projects at the Airport and established a Habitat Management Plan. The permit was amended in 2009 to include a shift in Runway 6-24 and vegetation removal, and again in 2014 to permit moving the localizer array, resulting in a total of 17 projects authorized by the permit. Both the permit and Habitat Management Plan require annual reporting for mitigation areas and rare and invasive species.

Figure 4-8: Priority and Estimated Habitats of Rare Wildlife



Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\4-8_PriorityEstHabitat.mxd

Table 4-3 Rare Species Identified by MA Natural Heritage and Endangered Species Program

Common Name	Scientific Name	State Status	Taxonomic Group
Walsh's Anthophora	<i>Anthophora walshii</i>	Endangered	Bee
Purple Tiger Beetle	<i>Cicindela purpurea</i>	Special Concern	Beetle
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Threatened	Bird
Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>	Special Concern	Bird
Northern Harrier	<i>Circus cyaneus</i>	Threatened	Bird
Coastal Heathland Cutworm	<i>Abagrotis nefascia</i>	Special Concern	Butterflies and Moths
Barrens Dagger Moth	<i>Acrionicta albarufa</i>	Threatened	Butterflies and Moths
Herodias Underwing Moth	<i>Catocala herodias</i>	Special Concern	Butterflies and Moths
Waxed Sallow Moth	<i>Chaetagnalea cerata</i>	Special Concern	Butterflies and Moths
Melsheimer's Sack Bearer	<i>Cicinnus melsheimeri</i>	Threatened	Butterflies and Moths
Chain Dot Geometer	<i>Cingilia catenaria</i>	Special Concern	Butterflies and Moths
Collared Cycnia	<i>Cycnia collaris</i>	Threatened	Butterflies and Moths
Imperial Moth	<i>Eacles imperialis</i>	Threatened	Butterflies and Moths
Scrub Euchlaena	<i>Euchlaena madusaria</i>	Special Concern	Butterflies and Moths
Slender Clearwing Sphinx	<i>Hemaris gracilis</i>	Special Concern	Butterflies and Moths
Buck Moth	<i>Hemileuca maia</i>	Special Concern	Butterflies and Moths
Sandplain Heterocampa	<i>Heterocampa varia</i>	Threatened	Butterflies and Moths
Woolly Gray	<i>Lycia ypsilon</i>	Threatened	Butterflies and Moths
Barrens Metarranthis Moth	<i>Metarranthis apiciaria</i>	Endangered	Butterflies and Moths
Heath Metarranthis	<i>Metarranthis pilosaria</i>	Special Concern	Butterflies and Moths
Pink Sallow	<i>Psectraglaea carnosia</i>	Special Concern	Butterflies and Moths
Southern Ptichodis	<i>Ptichodis bistrigata</i>	Threatened	Butterflies and Moths
Pine Barrens Speranza	<i>Speranza exonerata</i>	Special Concern	Butterflies and Moths
Faded Gray Geometer	<i>Stenoporpia polygrammaria</i>	Threatened	Butterflies and Moths
Pine Barrens Zale	<i>Zale lunifera</i>	Special Concern	Butterflies and Moths

Common Name	Scientific Name	State Status	Taxonomic Group
Purple Needlegrass	<i>Aristida purpurascens</i>	Threatened	Plant
Lion's Foot	<i>Nabalus serpentarius</i>	Endangered	Plant
Papillose Nut-Sedge	<i>Scleria pauciflora</i>	Endangered	Plant
Sandplain Blue-Eyed Grass	<i>Sisyrinchium fuscatum</i>	Special Concern	Plant
Grass-Leaved Ladies'-Tresses	<i>Spiranthes vernalis</i>	Threatened	Plant

4.11 SURFACE TRANSPORTATION (MEPA)

The Airport is located on Airport Road, which is accessible via Edgartown-West Tisbury Road, both of which are two-lane roads. According to a traffic analysis conducted for the 2016 MPU, during the weekday, the intersection of Edgartown-West Tisbury Road and Airport Road operates at a Level of Service (LOS) C during morning peak hour, LOS F during midday peak hour, and LOS E during evening peak hour. Level of service ranks from A at the best (least congested) to F for the worst (highly congested) conditions.

According to the 2016 MPU, there are currently 369 automobile parking spaces at the Airport. The majority of parking spaces account for short/long term parking at 226 spaces, with the remaining spaces accounting for rental car/long term parking at 90 spots, restaurant parking with 39 spots, corporate parking with nine spots, and five employee parking spots. Vehicle counts at peak traffic levels were performed in July 2019 and recorded a total of 473 vehicles entering and 447 vehicles leaving the Airport on a weekday, and 429 vehicles entering with 405 vehicles leaving on a Saturday. See the Surface Transportation Study in Appendix G (available upon request) for more details regarding existing conditions.

The Airport is identified in the Martha's Vineyard Transportation Plan 2016-2040 as one of four "bus hubs" on the island, with a bus stop at the Airport and the Martha's Vineyard Transit Authority located within the Airport Business Park. There is year-round public transit service between the Airport and all six towns of Martha's Vineyard, with a special peak season and shoulder season service. There are multiple routes that stop at the airport. According to the Vineyard Transit website, there are four bus service schedules for 2021 running between April 9 and October 2. Between May 21 and June 24, 2021, for example, Route #6 runs between Edgartown and West Tisbury and stops at the airport 15 times per day in each direction (30 times total). Route #7 runs between the Airport and Oak Bluffs, with Airport stops 13 times in each direction; and Route #9 also runs between the Airport and Oak Bluffs along a different route and stops at the Airport 14 times per day in each direction. All of these lines have more stops on weekends and during the peak season. These lines also allow riders to connect to the other bus lines and reach other island destinations via the Ocean Park stop. The bus routes also serve as a link to the two ferry terminals on the island, Vineyard Haven and Oak Bluffs, which operate year-round service.

To promote the bus service, the Airport website currently provides a link to the Vineyard Transit website, which provides the most up to date scheduling and routes for passengers looking to use the bus service.

The Airport is adjacent to the Manuel F. Correllus State Forest, which has multiple recreational bicycle trails. Additionally, there is an easement restrictive covenant which runs along the southern and eastern boundary of the airport for a recreational trail. Bicycling is a common mode of transportation on the island during peak months with bike lanes throughout several roads on the island and a seasonal bicycle ferry. There are also bicycle racks at the Airport.

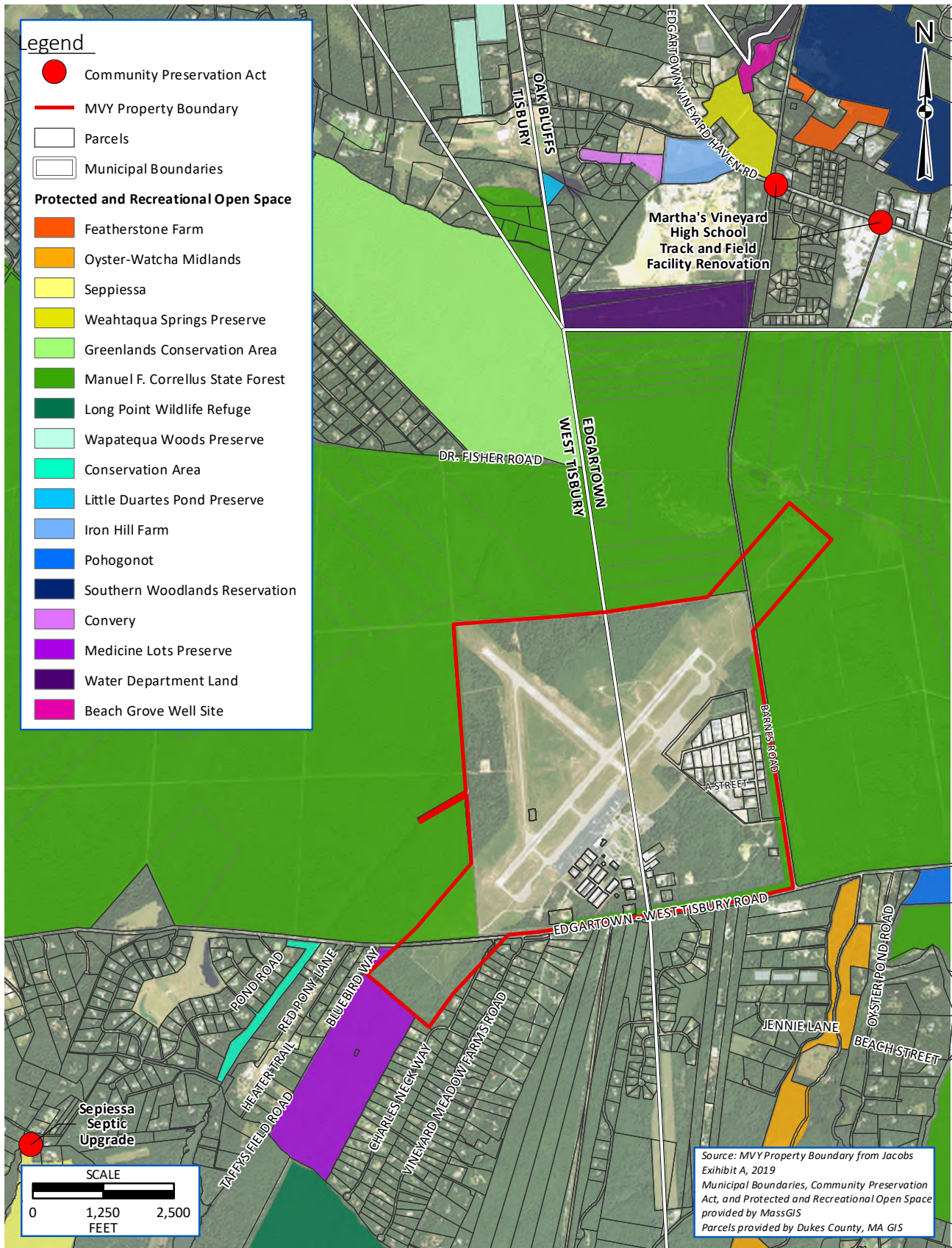
4.12 SCENIC QUALITIES, OPEN SPACE AND RECREATIONAL RESOURCES (MEPA/NEPA)

Martha's Vineyard is a popular summer destination due to its many publicly accessible beaches and recreational resources. The Airport is centrally located on the island with easy access by car or bicycle to all six towns. Because of its central location, it is visible to the traveling public but not close to any of the more popular tourist destinations.

Manuel F. Correllus State Forest is a 5,300-acre protected area abutting the Airport on three sides. The State Forest sees extensive recreational use on a variety of gravel roads and trails. A paved shared-use path follows alongside Barnes Road and Edgartown-West Tisbury Road, passing through both State Forest and Airport property. The shared-use path is part of a network of roughly 13 miles of paths around the State Forest (<https://www.mvy.com/bikingmv.html>) and a broader, island-wide network. Fire lanes – gravel roads crisscrossing the State Forest for fire control and management access – are used by bicyclists and hikers. A network of trails is found throughout the State Forest, some unsanctioned, and some within potential vegetation management areas. There are parking areas for trail access at the northeastern corner of Airport property, where a fire road intersects Barnes Road.

Conservation and recreation lands are shown on **Figure 4-9**.

Figure 4-9: Conservation and Recreation Lands



Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\4-9_Conservation Land.mxd

4.13 HISTORIC AND ARCHAEOLOGICAL RESOURCES (MEPA/NEPA)

According to 36 CFR Part 800, a historic property is “any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP).” The National Historic Preservation Act Section 106 requires that federal agencies, such as the FAA, consider the effects of their actions on historic properties via consultation with the State Historic Preservation Office (SHPO).

Any projects that require funding, licenses, or permits from any state agency must be reviewed by Massachusetts Historical Commission (MHC) in compliance with Massachusetts General Laws Chapter 9, sections 26-27C.

Public Archaeology Laboratory, Inc. (PAL) has completed several archaeological investigations at the Airport, starting in 2003. PAL completed archeological sensitivity assessments for the CIP Projects in January 2019 and again in July 2020 to address new and expanded project areas. The sensitivity assessments were followed by intensive archaeological surveys in areas of moderate sensitivity.

The intensive surveys were conducted in March 2019 and January 2021. No archaeological resources were identified during the March 2019 surveys, and it was determined that the proposed Projects are unlikely to affect any significant archaeological resources. On August 12, 2019, following the initial intensive survey, the MHC provided a finding for the proposed Projects of unlikely to affect significant historic or archaeological resources, and no further investigation was recommended (Appendix F). Additional surveys were necessitated by the addition of projects that were not in the original CIP project list, including Runway 6-24 ground obstructions, hangar projects, and airspace vegetation obstructions. The additional intensive survey was completed, and no archaeological resources were found. Results will be provided to MHC for review and comment.

4.14 SECTION 4(F) RESOURCES (NEPA)

Section 4(f) of the Department of Transportation Act of 1966 protects publicly owned parks, recreation areas, wildlife and waterfowl refuges, and historic sites of national, state, or local significance from federally funded project impacts unless there are no feasible alternatives. Conservation lands are shown on **Figure 4-9**.

Manuel F. Correllus State Forest borders the Airport to the north, east, and west, with a small portion of the State Forest along the southern boundary of the Airport as a conservation restriction. The State Forest is over 5,300 acres in size and provides recreational activities like hiking, bicycling, hunting, cross-country skiing, and disc golf. As a wildlife refuge and a recreational facility, the State Forest is assumed to be subject to Section 4(f).

The Margaret K. Littlefield Greenlands conservation area is located in West Tisbury approximately one-half mile north of the Airport. It was purchased by the Town of West Tisbury to protect open space and the aquifer. There are two parcels just southeast of the Airport that comprise the Watcha Division Conservation Area owned by The Nature Conservancy. The Nature Conservancy also owns the Medicine Lots Preserve that abuts the southwestern portion of the Airport and is approximately 98 acres in size. It has not been determined whether Greenlands, the Medicine Lots, or the Watcha properties are subject to Section 4(f).

The shared-use path along Barnes Road and Edgartown-West Tisbury Road is assumed to be a Section 4(f) resource.

No historic sites of national, state, or local significance, and no other potential Section 4(f) resources, have been identified on or adjacent to the airport.

4.15 LAND USE (MEPA/NEPA)

When considering improvement projects that meet airport development goals, it is important early in the planning process to identify potential impacts to existing land uses on airport property and in the surrounding area and to determine how potential airport projects will affect future land use and development patterns. This will enable the plan to incorporate measures into the future design and layout of airport developments that will avoid or minimize land use conflicts as well as improve on existing conflicts when practicable.

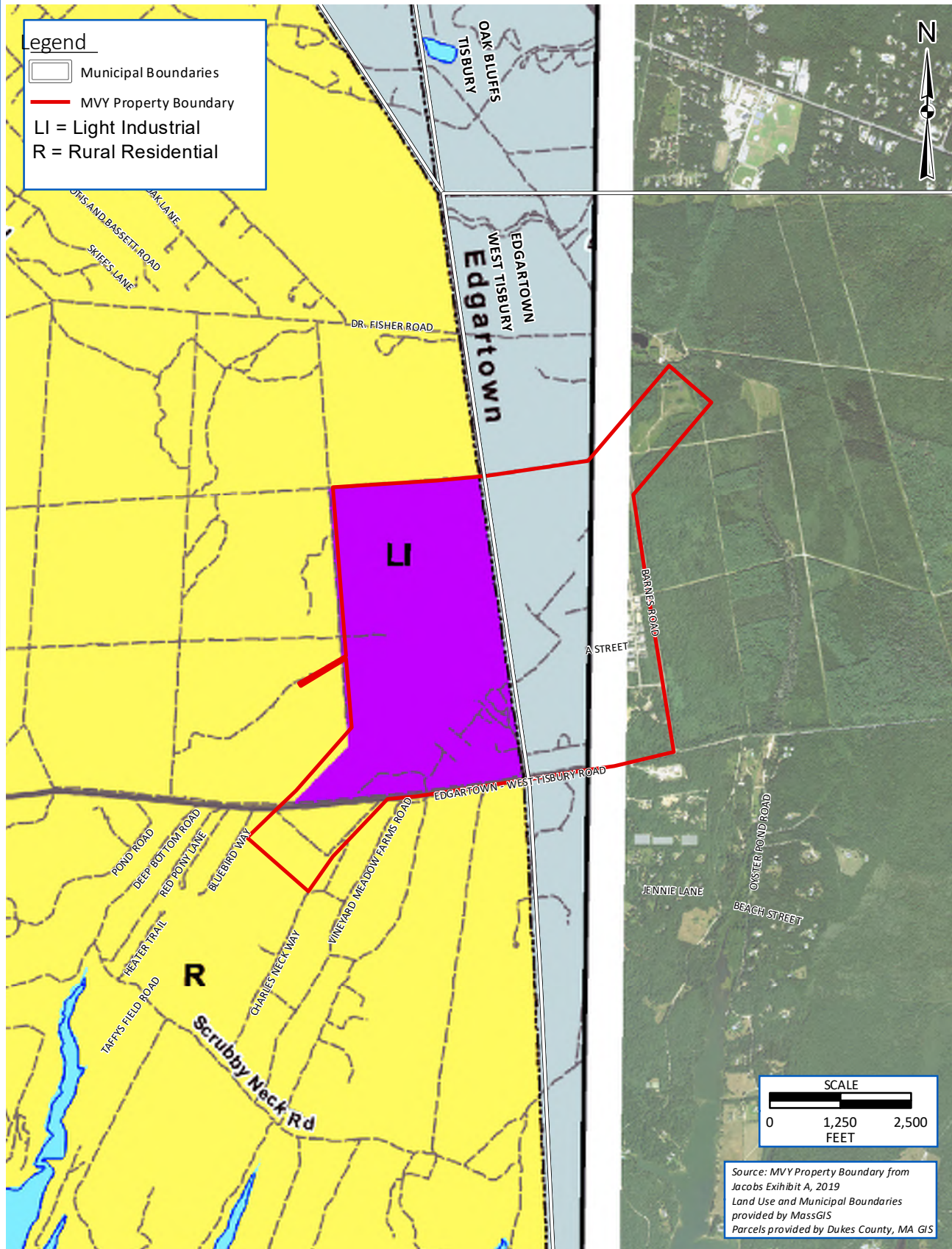
Land uses that are considered more susceptible to impacts from airport development include, but are not limited to, residential areas, schools, religious institutions, hospitals, and public places including some recreational areas and parks where quiet is an expected part of the user experience. Land use on and around the airport, based on MassGIS¹⁰ land cover mapping, is shown on **Figure 4-3**.

The Airport is located in the LI (light industrial) zone in West Tisbury and the B-III (light manufacturing and light industrial) and B-IV (aviation facilities, storage of heavy equipment) zones in Edgartown. The land surrounding the airport is zoned as rural residential in West Tisbury and single family residential in Edgartown (**Figures 4-10 and 4-11**). Much of the surrounding land to the North, East, and West of the Airport is undeveloped and is part of Manuel F. Correllus State Forest, with residential development south of the Airport.

FAA AC 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports, provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. Potential wildlife attractants and congregation areas can include areas such as shopping malls, agricultural fields, livestock operations, golf courses, parks, waste handling facilities, waterbodies, wetlands, and water management facilities. There are multiple land uses and areas located within 5 miles of the Airport that could serve as potential wildlife attractants, including but not limited to wetlands, surface waters, golf courses, athletic fields, maintained grasslands, and mining facilities.

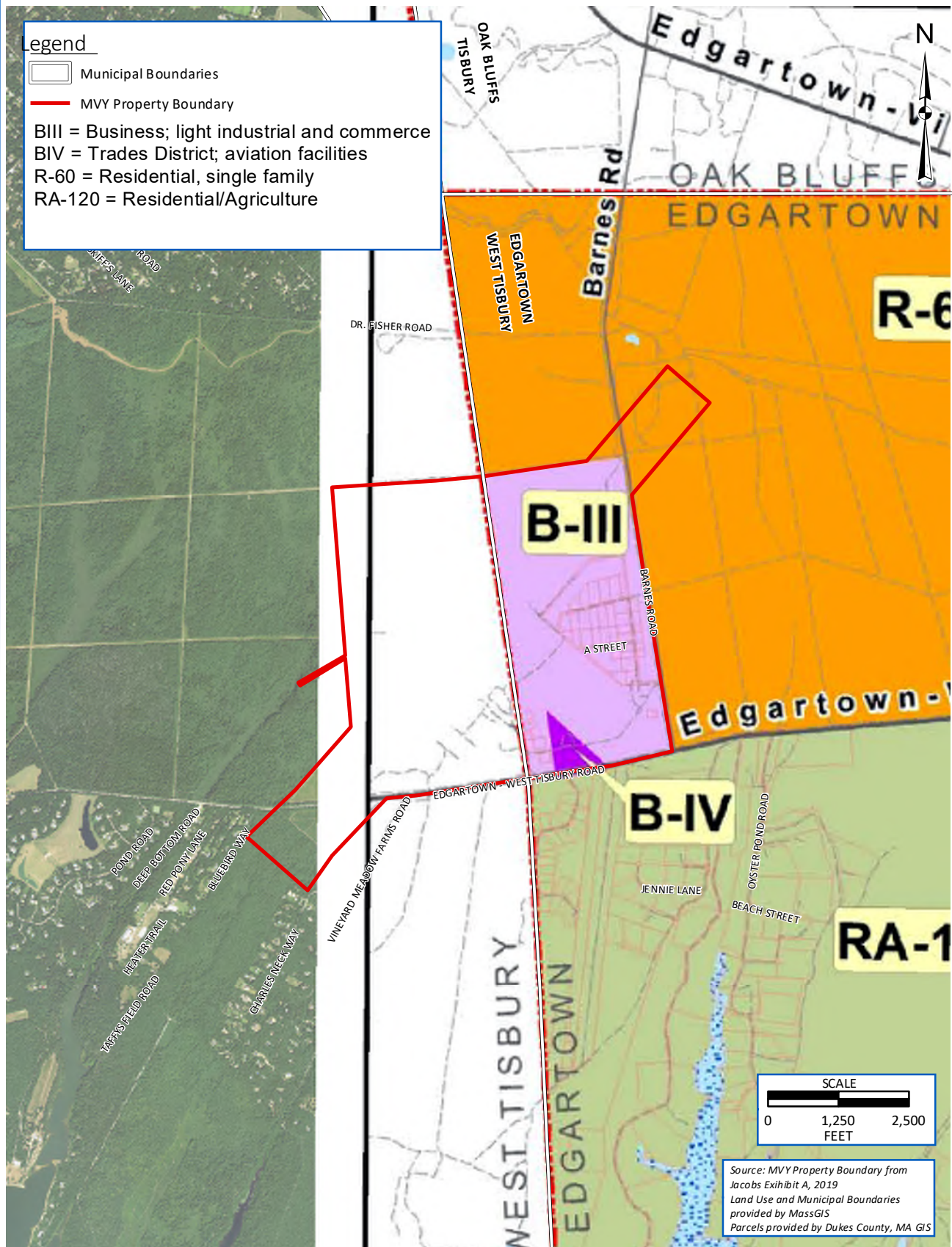
¹⁰ Massachusetts Bureau of Geographic Information, <https://www.mass.gov/orgs/massgis-bureau-of-geographic-information>

Figure 4-10: West Tisbury Zoning



Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\4-10_WestTisburyZoning.mxd

Figure 4-11: Edgartown Zoning



Document Path: K:\Martha's Vineyard\T-18226.07 EA-EIR\Draw\GIS\EA_Map_Documents\4-11_EdgartownZoning.mxd

4.16 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS (NEPA)

Environmental Justice evaluations consider the potential of federal actions, including those involving federally obligated airports, to cause a disproportionate and adverse effect upon low-income or minority populations. MEPA regulations (301 CMR 11.00) require that a project consider the “social conditions” of its site, and the *Environmental Justice Policy of the Massachusetts Executive Office of Energy and Environmental Affairs* directs all agencies, offices, boards, and other entities under the Executive Office of EEA to consider environmental justice in all of its programs, to the extent applicable and legally allowable.¹¹ At the federal level, FAA Order 1050.1F requires the analysis of potential impacts of alternatives on “economic activity, employment, income, population, housing, public services, and social conditions.” In keeping with this regulatory framework, the following sections characterize the existing socioeconomic, environmental justice, and children's health and safety conditions within and proximate to the Project areas.

This section provides information on the socioeconomic characteristics of the area surrounding the Airport. Statistics from the United States Census Bureau's American Factfinder were used to examine the population profile, characteristics, and trends for the region.

The Airport is located in West Tisbury and Edgartown, both in Dukes County. As shown in **Table 4-4**, the 2013 to 2017 American Community Survey recorded the Town of West Tisbury population at 2,417 with 98.2 percent white population and 3.7 percent of the individuals below the poverty line. Edgartown had a population of 4,292, 96.9 percent of which were white and 5.1 percent below the poverty line. The percentage of the population who identified as minority in West Tisbury, Edgartown, and Dukes County is much lower than that reported for the nation. Additionally, the percentage of the population below the poverty level in West Tisbury and Edgartown is lower than that of the county and national levels. Lastly, median household income and percent of the population age 65 and above in both towns and Dukes County is higher than the national average.

According to data published by the Martha's Vineyard Commission¹², Dukes County in 2016 had 1,087 establishments employing 5,679 workers. In West Tisbury as of 2016, 43 percent of housing units (951 units) were occupied, and 57 percent were vacant. In Edgartown, 27 percent (1,394 units) were occupied, and 73 percent were vacant. These figures reflect the high percentages of vacation homes on the island.

The Massachusetts Department of Transportation Aeronautics Division publishes summaries of the economic impact of the state's airports. In 2019¹³, they estimated that Martha's Vineyard Airport contributed to total employment of 587 workers with a total payroll of \$29,617,000 and a total output of \$96,746,000. The figures include “all on-airport business and government agency, capital improvement project, visitor, and multiplier impacts”.

¹¹ Massachusetts Executive Office of Energy and Environmental Affairs. (2017). *Environmental Justice Policy of the Massachusetts Executive Office of Energy and Environmental Affairs* Retrieved April 24, 2020, from https://www.mass.gov/files/documents/2017/11/29/2017-environmental-justice-policy_0.pdf

¹² Martha's Vineyard Commission (2019). *Martha's Vineyard Statistical Profile, February 2019*.

¹³ Massachusetts Department of Transportation Aeronautics Division (2019). *Massachusetts Statewide Airport Economic Impact Study Update, Executive Summary*.

As of November 2020 (K. Brennan, pers. com.), the Airport has 77 leases and/or agreements with land lessors or terminal tenants. Those land leases currently have approximately 48 subtenants, for a total of 125 leaseholders and subtenants.

Table 4-4 Environmental Justice Population Data

Census Category	National Average	West Tisbury	Edgartown	Dukes County
Total Population	321,004,407	2,417	4,292	17,275
White Population	75.7%	98.2%	96.9%	92.2%
Minority Population	24.3%	1.8%	3.1%	7.8%
Population Under Age 5	6.2%	1.5%	3.1%	4.4%
Population Age 65 & Older	14.9%	31.0%	18.0%	21.2%
Individuals Below Poverty Level	14.6%	3.7%	5.1%	8.4%
Median Household Income	\$ 57,652	\$ 92,188	\$ 75,404	\$ 67,535

Source: 2013-2017 American Community Survey 5-Year Estimates.

4.17 HAZARDOUS MATERIALS, SOLID WASTE AND POLLUTION PREVENTION (MEPA/NEPA)

This section discusses hazardous materials and solid waste in relation to the proposed Projects. The term hazardous materials is a broad term collectively used to describe: hazardous wastes; hazardous substances; asbestos; petroleum products; and substances/chemicals that present a health hazard or are a risk to the public and safety of the environment including oil, chemicals and hazardous waste. They are defined as those substances that may constitute a present or potential threat to human health, safety, welfare, or the environment. Solid waste includes both hazardous and non-hazardous wastes. This can include garbage or refuse, sludge, and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Hazardous wastes are certain solid wastes that require additional regulation because they are dangerous or known to be harmful to human health or the environment. Solid waste also includes construction debris and excavated soils.

4.17.1 Fuel Storage

The storage of petroleum at the Airport consists of various above ground storage tanks and underground storage tanks at areas such as the fuel farm, terminal area, and Business Park. A Spill

Prevention, Control and Countermeasure (SPCC) Plan was developed for the Airport in 2002 and most recently updated in 2012. The SPCC Plan details the location of hazardous materials stored within the operational areas of the Airport, as well as persons with responsibility for each storage location. The Airport SPCC Plan details best management practices that detail requirements for storage of petroleum. The Airport has committed to updating the SPCC Plan within the next fiscal year.

4.17.2 Database Reviews

A Hazardous Waste/Contaminated Material (HWCM) desktop screening was conducted to determine the potential for the presence of HWCM on or in the vicinity of Airport property. The screening involved the review of online governmental databases and an Environmental Radius Report dated March 20, 2019 provided by Nationwide Environmental Title Research Online (NETROnline). An environmental regulatory agency records review of this nature is based on publicly available information from state and federal agencies. This report identified one leaking underground storage tank (LUST) within one mile of the Airport, located at a private downgradient residence to the south-southeast.

The MA Executive Office of Energy and Environmental Affairs Data Portal (online database) was accessed on November 12, 2020 and showed the following Release Tracking Numbers (RTNs) associated with the Airport.

RTN 4-0012087: The Data Portal states:

“Martha’s Vineyard Airport is currently listed under Release Tracking Number (RTN) 4-0012087. Two secondary RTNs associated with this incident, 4-0022067 and 4-0022138, were closed and rolled into the primary RTN. A portion of Martha’s Vineyard Airport, where the terminal building was constructed in 1999, was formerly operated as a dry cleaning facility. During demolition of the facility in 1995, elevated concentrations of PCE were detected in the groundwater. Since 1997, several remediation activities and strategies have been completed, and as of a report submitted on July 15, 2017, PCE levels were below MCP GW-1 standards.”

RTN 4-0027571: This site showed a reportable release on 11/20/2018. The source was reported to be aircraft fire fighting foam containing Perfluorooctanoic acid (PFOA). PFOA is addressed below.

4.17.3 Per and Polyfluoroalkyl Substances (PFAS)

PFOA and perfluorooctane sulfonate (PFOS), collectively called PFAS, are two man-made chemicals that were commonly used in household and industrial products, and historically in firefighting foams. PFOA and PFOS are persistent in the environment and have been increasingly tested for nationwide and found in groundwater, often in drinking water wells.

In November 2016, the USEPA published a drinking water Health Advisory level for PFOA and PFOS at individual or a combined 70 parts per trillion (ppt) based on the level of science to test and identify these chemicals at that date. The USEPA established the health advisory level to provide for a level of protection from a lifetime of exposure to PFOA and PFOS from drinking water sources.

In June 2018, the MassDEP issued a state-specific drinking water guideline of 70 ppt for five combined specific PFAS compounds.

On December 27, 2019, MassDEP amended the Massachusetts Contingency Plan (MCP) to include six PFAS compounds (referred to as the MassDEP PFAS6). These PFAS are perfluorooctane sulfonic acid (PFOS); perfluorooctanoic acid (PFOA); perfluorohexane sulfonic acid (PFHxS); perfluorononanoic acid (PFNA); perfluoroheptanoic acid (PFHpA); and perfluorodecanoic acid (PFDA). The MCP sets the acceptable levels of PFAS in soil and groundwater, including groundwater used as a source of drinking water by residential wells. The GW-1 Standard for PFAS in residential drinking water wells is 20 ppt for the sum of the PFAS6, while the S-1 soil cleanup levels range from 0.3 to 2 micrograms per kilogram ($\mu\text{g}/\text{kg}$) depending on the individual PFAS compound. These standards also vary depending on the groundwater and soil classification as defined under the MCP.

After PFOA/PFAS was found on site in 2018, an Immediate Response Action (IRA) plan was implemented. The IRA is focused on identifying the extent of contamination, communicating the extent with affected residents and stakeholders, and designing and installing appropriate point of entry treatment (“POET”) systems to provide safe, potable water. While PFAS levels above MCP Method 1 GW-1 standards for drinking water are seen at downgradient locations, the highest observed PFAS concentrations are below the MCP Method 1 GW-3 standards. The Method 1 GW-3 standards are protective of potential ecological effects, including potential risks from discharge to surface water.

Status reports and Initial Site Investigation reports are available on the Airport’s website¹⁴. The Comprehensive Site Assessment under the MCP is ongoing. As a result, the full extent of PFAS has not yet been determined. The Comprehensive Site Assessment is scheduled to be completed by November 2022, as per the scheduling requirements of the MCP.

4.17.4 Solid Waste

The U.S. Navy first cleared and developed the property in 1942 and occupied it until 1959, when it was transferred to the County. During and shortly after the Navy’s occupation of the Airport, solid waste was reportedly placed on site approximately 800 feet east of Airport Road and 500 feet north of Edgartown-West Tisbury Road. There is evidence of buried debris at the site. In November 2019, water samples from three groundwater wells around the site were tested for typical landfill parameters plus PFAS. None of the analyzed parameters were at concentrations above the Massachusetts Contingency Plan Reportable Concentrations for groundwater category GW-1, although total iron levels exceeded the MassDEP Secondary Maximum Contaminant Level¹⁵.

The Airport is part of the Martha’s Vineyard Refuse Disposal and Resource Recovery District. Solid waste within this district goes to recycling facilities or to a waste to energy facility on the mainland¹⁶. The Airport participates in the District’s single-stream recycling program.

¹⁴ <https://mvyairport.com/aqueous-film-forming-foam-releases-at-mvy-2/>

¹⁵ Tetra Tech (2020). Limited Subsurface Investigation Former U.S. Navy Waste Disposal Area, Martha’s Vineyard Airport, Edgartown MA. Submitted to U.S. Army Corps of Engineers.

¹⁶ <http://www.mvrefusedistrict.com/about.html>

4.17.5 Asbestos

Based on the age of the buildings, asbestos containing building materials (ACBMs) may be present. An ACBM survey and sampling will be conducted prior to any demolition activities. See Section 5.14.3 for asbestos handling and management procedures.

5 ENVIRONMENTAL CONSEQUENCES

This Chapter describes the anticipated environmental, social, and economic consequences of the Proposed Action (the proposed Projects). Information pertaining to the environmental consequences was obtained through an evaluation of the conceptual design plans, on-site investigations, review of published information, agency correspondence, and discussions with Airport personnel and public officials.

This review of the proposed Projects is consistent with the requirements of the Massachusetts Environmental Policy Act (MEPA) implementing regulations (301 Code of Massachusetts Regulations [CMR] 11.00) and the Secretary's Certificate on the proposed Projects' Environmental Notification Form (ENF) (EEA# 15964).

This chapter was also prepared to be consistent with the National Environmental Policy Act (NEPA). Under NEPA, each environmental impact category has a significance threshold beyond which the impact is considered significant and an Environmental Impact Statement (EIS) is required for the Proposed Action. However, if mitigation measures included as part of the Proposed Action reduce the impacts below significant threshold levels, an EIS would not be necessary and the action may be concluded with a Finding of No Significant Impact (FONSI).

Most of the proposed Projects are included in the Airport's Capital Improvement Plan. The proposed Projects would provide improvements to enhance the safety and efficiency of both aircraft and landside Airport operations. **Table 5-1** Preferred Alternatives below summarizes the preferred alternative for each project, herein referred to as the Proposed Action. For project locations see **Figure 2-1**, and for detailed descriptions, an alternatives analysis for each project, and plans showing each project, please refer to Chapter 3 of this DEIR/EA.

The No-Build Alternatives assume that the Proposed Action is not implemented and the conditions at the Airport would remain unchanged. The No-Build Alternatives include preventive or routine maintenance activities at select runways and taxiways. Such activities, however, would not fully meet the maintenance needs of the infrastructure and/or rectify problematic geometries that compromise the safety of aircraft operations.

The set of preferred alternatives meet the purpose and need while also minimizing environmental impacts compared to other alternatives identified in the alternatives analysis. The potential impacts from the Proposed Action are discussed in the following sections and quantified to the extent possible. For the purposes of this impact analysis, depending on the nature of the potential impacts, the proposed Projects may be discussed individually, collectively, or grouped by location and/or function. In areas where quantitative measures cannot be provided, qualitative assessments are provided. The following resources are not present within the project area or immediate vicinity and therefore, do not require further evaluation:

- Wild and Scenic Rivers
- Surface Waters
- Wetlands

- Floodplains/Floodways
- Historic and Archaeological Resources (pending MHC confirmation of findings)

Table 5-1 Preferred Alternatives

Project	Preferred Alternative
Business Park Lots 34 and 38	Build Alternative: Build on both lots
Aircraft Hangar Development	Build Alternative: Construct two new hangars
Improve Fuel Farm Access and Safety	Build Alternative: Pave pad and access road
Airspace Vegetation Management	Runway 6-24 Build Alternative (vegetation management) Runway 15-33 Alternative 5 (Displaced Threshold with limited vegetation management)
Runway 15-33 Reconstruction	Alternative 5: Displace Runway 15 threshold 275 feet
Taxiway E Reconstruction	Alternative 5: Construct partial parallel taxiway
Regrade Runway 6-24 Side Safety Areas Regrading	No-Build Alternative
Terminal Building Renovation	Renovate and expand largely within existing footprint
Access Road Improvements	Right-Turn Lane
Aircraft Parking and Movement Areas	Construct new stub taxiway to Southeast Ramp and Reconfigure Southwest Ramp

5.1 TOPOGRAPHY, GEOLOGY AND SOILS (MEPA/NEPA)

5.1.1 Federal Farmland Soils Protection

The Agriculture and Food Act of 1981, Public Law 97-98, contained the Farmland Protection Policy Act (FPPA), which regulates Federal actions with the potential to convert farmland to non-agricultural uses. The FPPA requires Federal agencies to consider the adverse effects their programs may have on the preservation of farmland and to review alternatives that could minimize any unnecessary and irreversible conversions of farmland.

The FPPA does not apply to land that has already been committed to urban development, to non-agricultural development in a zoning ordinance or comprehensive plan, nor does it apply to prime farmland planned for industrial or commercial use. The areas proposed for soil disturbance for these Projects are all in areas designated for future development on the Airport's most recent "Ultimate Airport Layout Plan", prepared in 2016. Therefore, the soils in these areas are not subject to the FPPA.

5.1.2 No-Build Alternative

The No-Build Alternative assumes that the Proposed Action is not implemented, and that soils would remain unchanged; therefore, there will be no impacts to soils.

5.1.3 Proposed Action

Most of the areas proposed for soil disturbance have previously disturbed soils. The northern extension of Taxiway E may affect prime farmland soils, but as noted above, it is an area previously identified for airport development and is not suitable for farming due to proximity to runways and taxiways. The proposed vegetation management areas are identified as prime farmland soils, and logging equipment could cause some soil disturbance. However, the disturbance is not expected to substantially alter the soils nor to affect the characteristics which qualify them as prime farmland soils.

5.2 WATER RESOURCES (MEPA/NEPA)

This section describes the potential Project effects on water resources. FAA Order 1050.1F requires consideration of a projects potential to adversely affect surface waters, natural and beneficial water resource values, or water quality in ways that make obtaining a permit or authorization difficult. FAA Order 1050.1F and Order 5050.4B require EA's to include sufficient description of a proposed action's design and mitigation measures developed for non-point sources under Section 319 of the Clean Water Act, as well as construction controls to demonstrate the water quality standards and any permit requirements will be met.

Since there are no surface waters or wetlands within or in the immediate vicinity of Project areas, surface waters and wetlands are not addressed further here. The principal water resource of concern is the USEPA-designated sole source aquifer underlying the Airport. The aquifer supplies water to the entire island, including the Airport's supplier, the Oak Bluffs Water District.

5.2.1 Direct Impacts

No-Build Alternative

There would be no change in stormwater management, drainage patterns, or other conditions which affect water resources under the No-Build Alternatives. The Project areas would remain in active Airport use, there would be no new construction, the amount of impervious area would remain the same, and the existing stormwater collection system would stay in place. Therefore, no new direct or indirect impacts are anticipated under the No-Build Alternatives.

Proposed Action

Since the groundwater surface is 30 to 50 feet below the ground surface, no project work is expected to come in direct contact with the aquifer.

The Massachusetts Stormwater Management Standards mandate that no new stormwater conveyances may discharge untreated runoff directly into wetlands or waters of the Commonwealth. Martha's Vineyard Airport is unusual in that most of the runway and taxiway pavement is located on coarse sandy soils (Carver loamy sand) which are highly permeable and favorable for stormwater infiltration and groundwater recharge. However, because this soil is so permeable (greater than 2.4 inches infiltration per hour), the stormwater requires additional treatment to avoid a direct discharge to the sole source aquifer. Proposed BMPs, per Massachusetts Stormwater Standards, remove at least 80% of Total Suspended Solids (TSS) for treatment. Due to the highly permeable soils at Martha's Vineyard Airport, 44% of TSS must be removed by the BMPs prior to infiltration. Because all BMP chains end in infiltration, all of the runoff recharges the aquifer, ensuring that post-development infiltration is at least as much as pre-development conditions.

The proposed Projects will result in a net decrease in pavement of approximately 1.9 acres. Each project includes permanent stormwater management measures that meet the guidelines of the Massachusetts Stormwater Handbook¹⁷ to the extent practicable. Proposed stormwater management for Projects that would involve new pavement are listed in **Table 5-2** below.

As described in Section 4.7, rainfall amounts are expected to increase and storms are expected to become more frequent and intense. Because of the Airport's highly permeable soils and its topography, all Airport runoff is believed to stay on the Airport until it infiltrates into the ground through existing and proposed infiltration structures and airfield soils. Small increases in precipitation amounts or intensity are not expected to exceed the ability of the infiltration infrastructure and existing soils to infiltrate stormwater runoff. However, during final design of each project, additional analysis will be done to ensure BMPs control runoff, address peak rate attenuation, provide groundwater recharge, and improve water quality within the design life (typically 20 years) of each project, considering current and future climate conditions.

¹⁷ Massachusetts Department of Environmental Protection. (2008). *Massachusetts Stormwater Handbook, Volumes 1 and 2*.

Table 5-2 Proposed Stormwater Best Management Practices (BMPs)

PROJECT	BMP CHAIN 1 of 3	BMP CHAIN 2 of 3	BMP CHAIN 3 of 3	TOTAL TSS REMOVAL
1. Business Park Lots 34 and 38	Previously permitted and would continue to drain into the Business Park stormwater system, which is managed through infiltration systems and is not discharged off site. Stormwater management on individual lots is the responsibility of the individual leaseholders.			
2. Aircraft Hangar Development	Stormwater treatment levels will be similar to other proposed treatment systems and will be the responsibility of the hangar developers.			
3. Improve Fuel Farm Access and Safety	Deep Sump and Hooded Catch Basin	Oil Grit Separator	Subsurface Infiltration Structure	89%
4A and 4B. Airspace Obstruction Removal - Runway 6-24	Tree removal areas will remain densely vegetated and it is assumed no stormwater management is necessary.			
5-5. Reduce Runway 15 Distance by 275'	Vegetated Filter Strip >50 FT	Deep Sump and Hooded Catch Basin	Subsurface Infiltration Structure	92%
7. Terminal Building Renovation	N/A	N/A	N/A	N/A
8-1. Access Road Right Turn Lane	Water Quality Dry Swale	Deep Sump and Hooded Catch Basin	Subsurface Infiltration Structure	96%
9-2B. New Stub Taxiway to Southeast Ramp	Vegetated Filter Strip >50 FT	Deep Sump and Hooded Catch Basin	Subsurface Infiltration Structure	92%
9-3. Reconfigure Southwest Ramp	Deep Sump and Hooded Catch Basin	Sand Filter	Subsurface Infiltration Structure	97%

The National Pollutant Discharge Elimination System (NPDES) stormwater program regulates stormwater discharges from municipal separate storm sewer systems (MS4s), construction activities, and industrial activities. Martha's Vineyard does not have MS4-regulated communities¹⁸, and there are no discharges to Waters of the United States on the Airport, so NPDES regulation of industrial stormwater runoff (and the associated Multi-Sector General Permit) does not apply. Runoff from construction activities is described below.

5.2.2 Construction Impacts

Any project that includes ground disturbance has the potential for erosion and sedimentation during construction activities. This may have adverse effects on receiving waters; however, due to the sandy soils that infiltrate water rapidly and the lack of wetlands and surface waters in the immediate vicinity of the proposed Projects, this is not a concern. Nevertheless, there is a potential for impacts and appropriate regulations will be followed and measures employed, as described in Section 5.2.4 below.

5.2.3 Indirect/Secondary Impacts

The proposed Projects are not expected to result in or induce projects or other activities that would adversely affect water resources. The Airport monitors indirect and secondary impacts to stormwater runoff through its spill prevention programs and operations and maintenance procedures. The Airport's primary water quality goal is to prevent or minimize discharges, thus limiting adverse water quality impacts associated with Airport activities.

Impacts to groundwater from historical use of aqueous film forming foam (AFFF) are being investigated at the Airport. AFFF contains per and polyfluoroalkyl substances (PFAS) which are regulated by the Massachusetts Department of Environmental Protection (MassDEP). Federal safety measures require the continued use of AFFF for emergencies, testing equipment, and training procedures at the Airport. The Airport has recently invested in technology that avoids discharging the foam during testing; however, PFAS impacted soil and groundwater is present on the airport property. In the event AFFF were discharged in a non-emergency situation, it would be collected in a storage tank from which it can be pumped out and disposed of properly.

The proposed Projects would not create new pathways for introduction of PFAS to the groundwater or soil. The Airport will continue to adhere to safety protocols related to the use of AFFF and comply with state requirements for handling of PFAS-impacted groundwater and soils.

5.2.4 Mitigation Measures

Permanent Stormwater Management

The permanent stormwater BMPs described in Section 5.2.1 were selected to meet the Massachusetts Stormwater Standards, including erosion control, controlling peak discharge rates, providing groundwater recharge, and providing pollutant removal, among other requirements.

The new stormwater management measures will also protect the sole-source aquifer and will meet or exceed the requirements of the MassDEP Stormwater Management Standards.

¹⁸ <https://www.epa.gov/npdes-permits/regulated-ms4-massachusetts-communities>, accessed 11/20/2020

The Airport does not have discharges to Waters of the U.S. and is not subject to the NPDES Multi-Sector General Permit. However, the Airport voluntarily follows stormwater pollution prevention best practices and in 2012 prepared a Draft Stormwater Pollution Prevention Plan (SWPPP) for use in ongoing Airport operations and maintenance.

Spills and accidents will be managed by strict adherence to the Spill Prevention, Control, and Countermeasure Plan. The plan was last updated in 2012 and the Airport has committed to updating it in the next fiscal year. The SPCC Plan includes an inventory of existing facilities, materials handled, drainage systems, emergency response procedures, and other spill prevention and countermeasure procedures.

Stormwater Management During Construction

Generally, projects that disturb one or more acres must comply with the NPDES Construction General Permit (CGP). If there are no discharges to Waters of the U.S., as is the case at the Airport, NPDES may not apply. If NPDES is applicable, the proposed Aircraft Hangar Development, Runway 15-33 Reconstruction, and Taxiway E Reconstruction projects will each disturb over one acre of land and would require separate filings under the CGP. Any other projects that exceed one acre of disturbance will also require approvals. The USEPA is the NPDES permitting authority for Massachusetts. The issuance of a NPDES permit for stormwater discharges associated with construction activities (if applicable) requires the preparation of a project-specific Stormwater Pollution Prevention Plan.

Controls would comply with Massachusetts and USEPA guidelines for construction sites, and could include sedimentation basins, stone check-dams, swales, or other temporary measures. Non-structural practices that may be used during construction include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping, and dust control. These practices would be initiated as soon as practicable in appropriate portions of the work zones. Prior to any ground disturbance, an approved erosion control barrier would be installed at the downgradient limit of work. As construction progresses, additional barriers would be installed around the base of stockpiles and other erosion-prone areas. Barriers would be inspected and maintained properly throughout construction.

The Airport also has a Spill Prevention, Control, and Countermeasure (SPCC) Plan to address temporary impacts such as the potential discharge of oil or liquid hazardous materials into surface or ground waters. The SPCC Plan was last updated in 2012 and the Airport plans to update it in the next fiscal year.

5.3 COASTAL RESOURCES (MEPA/NEPA)

The Airport is located in a designated coastal zone for Massachusetts, the Cape Cod, and Islands zone. However, due to the airport's centralized location on the island and lack of coastal features such as beaches, banks or dunes, the proposed Projects are not expected to have an impact on coastal resources. The ENF was distributed to the Massachusetts Coastal Zone Management Program and the and the DEIR/EA is also being distributed to the Program. The Airport will continue to coordinate with the CZMP as needed.

5.4 AIR QUALITY (MEPA/NEPA)

This section provides an overview of the air quality analysis associated with the proposed Projects. This includes the assessment of operational emissions of the USEPA's "criteria pollutants" (and their precursors).¹⁹ Construction-related emissions of the criteria pollutants associated with the proposed Projects are also qualitatively assessed.

NEPA requires the disclosure of a proposed action's impacts on the human environment, including air quality. The Clean Air Act, the other primary federal regulation that applies to the assessment of air quality impacts attributable to the proposed Projects, requires that a proposed action does not cause, or contribute to, a violation of the National Ambient Air Quality Standards (NAAQS) (40 CFR part 50). As described in Chapter 4, federal entities must meet General Conformity requirements by demonstrating that emissions from their actions will not exceed emission budgets established in a state's plan to attain or maintain the NAAQS. FAA determines whether the proposed Projects are exempt or on the Presumed to Conform List (72 Federal Register 41565, dated July 30, 2007). Projects that fall within the Presumed to Conform activities do not require an air quality analysis. An air quality analysis is required as the Taxiway E extension does not fall within the presumed to conform list.

MEPA requires air quality analyses for projects that will substantially affect mobile sources. Additionally, MEPA requires an analysis of greenhouse gas (GHG) emissions and mitigation measures to reduce emissions. GHG emissions are addressed below in Section 5.5.

5.4.1 No-Build Alternative

The No-Build Alternative assumes that the Proposed Action is not implemented, and therefore would have no effect on air quality.

5.4.2 Proposed Action

Air quality impacts associated with the operation of the proposed Projects have been considered in terms of mobile and stationary sources.

5.4.2.1 Mobile Source Emissions

Landside Mobile Source Emissions

Landside mobile source emissions include emissions from sources such as motor vehicles. **Table 5-3** describes how the Proposed Action could affect landside vehicular traffic and mobile source emissions.

Airside Mobile Source Emissions

Airside mobile source emissions result from aircraft engine operation, aircraft movements, and ground service equipment operation. The Proposed Action is not expected to increase the numbers or types of air traffic or ground service equipment. The proposed hangars could attract additional aircraft to the Airport, but in numbers which are well within the range of Airport estimates and projections for future air traffic. The Proposed Action also would not significantly alter aircraft movement patterns on the ground, although the Taxiway E extension would result in slightly different movement patterns.

¹⁹ USEPA. (2018). Nonattainment Areas for Criteria Pollutants (Green Book). Retrieved April 30, 2020, from <https://www.epa.gov/green-book>

Table 5-3 Potential Landside Mobile Source Emissions from Proposed Action

Project	Potential for Mobile Source Emissions (Other than Construction Emissions)
Business Park Lots 34 and 38	There would be an Increase in vehicle traffic upon completion of development. Increases were planned for and are expected to be minimal relative to local traffic.
Aircraft Hangar Development	There would be an increase in vehicle traffic to hangars. Approximately 15 shift workers will travel to and from the first hangar twice per day. Increases are expected to be minimal relative to local traffic. Increases air traffic is unknown at this time but are expected to be well within the volumes projected in planning documents such as the Airport Master Plan.
Improve Fuel Farm Access and Safety	No effect on vehicular travel or emissions.
Airspace Vegetation Management	No effect on landside mobile source emissions.
Runway 15-33 Reconstruction	No effect on landside mobile source emissions.
Taxiway E Reconstruction	No effect on landside mobile source emissions.
Access Road Improvements	The proposed right-turn lane will result in less idling time and more efficient traffic movements and should result in a reduction in emissions.
Terminal Building Renovation	This project will not affect mobile source emissions.
Aircraft Parking and Movement Areas	No effect on landside mobile source emissions.

Airside emissions were quantified to determine how the Proposed Action would affect air quality. Emissions were calculated using FAA's Aviation Environmental Design Tool (AEDT) to quantify emissions. The model incorporates aircraft types, numbers, movement patterns, and airport geometry, and produces emissions under existing and proposed conditions. The calculations were based on current aircraft operations under existing and proposed geometry. Based on these calculations, the Proposed Action would have the following slight increases in total annual emissions (in tons per year):

- Carbon monoxide (CO): 0.0109 ton
- Hydrocarbons (HC): 0.00082 ton
- Total organic gases (TOG): 0.00085 ton
- Volatile organic compounds (VOC): 0.00078 ton

- Non-methane hydrocarbons (NMHC): 0.0008 ton
- Oxides of nitrogen (NOx): 0.00002 ton
- Carbon dioxide (CO₂): 0.0918 ton
- Water (H₂O): 0.02713 ton
- Sulfur oxides (Sox): 0.00004 ton

The Nonattainment Areas General Conformity De Minimis Emission Levels for O₃ is 100 tons per year (NOx) and 50 tons per year (VOC) for areas with marginal and moderate ozone nonattainment inside an ozone transport region. The annual increase of 0.0008 ton is well below either of these thresholds. Based on these results, the Proposed Action will not have a significant effect on air quality and will not be a substantial source of pollutant emissions.

5.4.2.2 Stationary Emissions

The proposed terminal renovation would require a larger space to be heated and air conditioned. The hangars would also require additional heating and air conditioning. These emissions would be minimal and are not expected to require air quality permits as their rated capacities would be much smaller than permit thresholds. See Section 5.5 below for the quantification of energy and related emissions estimates associated within these projects.

5.4.2.3 Construction Impacts (MEPA/NEPA)

Construction of the Proposed Action would result in short-term changes in air emissions from sources such as exhaust emissions from nonroad construction equipment such as haul trucks, site clearing, and grading. On-road vehicles include those associated with transport and delivery of supplies, materials, and equipment to and from the site, and construction worker trips. Additionally, fugitive dust emissions include site preparation, land clearing, material handling, equipment movement on unpaved roads and evaporative emissions from the application of asphalt paving. Construction contractors would be instructed to use diesel equipment with after-engine emissions controls, utilize ultra-low sulfur diesel fuel, and minimize idling to comply with minimum standards for construction vehicles.

Emissions from the operation of construction machinery (i.e., carbon monoxide [CO], nitrogen oxide [NOx], particulate matter [PM₁₀, PM_{2.5}], volatile organic compounds [VOCs], and GHG emissions) are short-term and not generally considered substantial.

5.4.2.4 Indirect/Secondary Impacts

The proposed Projects are not expected to result in or induce projects or other activities that would result in a substantial increase to pollutant emissions or otherwise contribute to a degradation of air quality. No indirect/secondary impacts are anticipated for air quality.

5.4.2.5 Mitigation Measures

The operations of the proposed Projects would not cause significant adverse direct or indirect air quality impacts as they would not cause, or contribute to, a violation of the NAAQS. As such, no mitigation measures are proposed related to operations.

The Airport is committed to ensuring that short-term construction-related air quality impacts from the proposed Projects are minimized to the extent practicable. With the implementation of the following measures during the construction periods, no significant adverse impacts are expected.

Demolition activities will comply with Air Pollution Control regulations pursuant to Massachusetts General Law (M.G.L.) Chapter 40, Section 54, as well as current Massachusetts Air Pollution Control regulations governing nuisance conditions at 310 CMR 7.01, 7.05, 7.09 and 7.11. Fugitive dust emissions are proportional to the amount of earth moved and the length of travel on unpaved roads. Any impacts from fugitive dust particles would be of short duration and localized. Mitigating fugitive dust emissions involves curbing or eliminating its generation. Mitigation measures that will be used in site construction include wetting and stabilization to suppress dust generation, cleaning paved roadways, and scheduling construction to minimize the amount and duration of exposed earth.

The Airport will require contractors to utilize ultra-low sulfur diesel fuel for off-road construction vehicles and/or equipment. Construction contracts will require that gasoline and diesel motorized construction equipment be well maintained and in good running order during the work effort on the proposed Projects. All equipment and vehicles will be properly maintained and repaired to minimize exhaust emissions, including odors. Records of the routine maintenance programs for internal combustion engine-powered vehicles and equipment used for the proposed Project will be established and maintained. The proposed Projects will use alternative-fueled or electric equipment where feasible.

The construction of the proposed Projects will comply with the requirements of the MassDEP's Clean Construction Equipment Initiative aimed at reducing air emissions from diesel-powered construction equipment. The Airport requires that contractors install emission control devices, such as diesel oxidation catalysts and/or diesel particulate filters on certain equipment types (front-end loaders, backhoes, excavators, cranes, and air compressors). Equipment will meet the USEPA's Tier 4 Emissions Standards (40 CFR part 1039), which require that emissions of particulate matter (PM) and nitrous oxides (NOx) be further reduced, where feasible. Idle reduction and dust and odor control would also be addressed. The contractors will enforce Massachusetts' Anti-Idling law (310 CMR 7.11) which requires that engines idle for no more than five minutes, with the installation of on-site anti-idling signage at loading and waiting areas. Additionally, the Airport will encourage its contractors to prepare transportation management plans or other development programs or incentives that aim to reduce worker travel by single-occupancy vehicle to the Airport. Such programs may include the provision of off-Airport parking and shuttle services.

5.5 CLIMATE AND GREENHOUSE GAS EMISSIONS (MEPA/NEPA)

The Proposed Action's potential to affect climate change, or be impacted by climate change, are described in this section. GHG emissions associated with the proposed Projects were estimated in accordance with the MEPA GHG Emissions Policy and Protocol and NEPA guidelines.

Also in accordance with the Secretary's Certificate on the ENF, and per guidance provided in FAA's *1050.1F Desk Reference*, this section discusses the implications of climate change on the proposed Projects and the features incorporated into their designs that will increase their climate resilience.

The FAA has not established a significance threshold for climate impact, either in terms of GHG emissions or climate adaptation.

5.5.1 Greenhouse Gas Emissions (MEPA)

The Secretary's Certificate on the ENF requests an analysis of GHG emissions for the proposed terminal renovation and new hangars. This analysis considered the potential stationary and mobile GHG emissions associated with the proposed Projects in accordance with the Certificate and comments received from the Massachusetts Department of Energy Resources.

5.5.1.1 *No-Build Alternative*

The No-Build Alternative would continue promoting inefficient energy consumption and sometimes resulting in unnecessary idling and queue time from vehicles and aircraft due to current terminal deficiencies (i.e., passenger bottlenecks in accessing and moving through the terminal). The No-Build Alternative does not consider inclusion of "smart" and energy efficient building elements such as natural lighting, LED luminaires, integration of energy efficiency MEP systems, nor promote minimization of GHG emissions.

5.5.1.2 *Build Alternatives*

5.5.1.2.1 *Direct Impacts from Stationary Sources*

The airport terminal will be expanded from its existing 13,000 square feet to approximately 22,000 square feet of floor space, the minimum needed to meet current needs, as described in Chapters 2 and 3. The new hangars will add approximately 24,000 combined square feet.

Computer models of these facilities were developed and building consumption simulations were performed using the eQuest building energy analysis program²⁰. The eQuest program uses the latest DOE-2.2²¹ building energy analysis software as its calculating engine. This program permits modeling of a variety of building types and components including complex building geometry, lighting systems, HVAC systems, central plant equipment, and utility rate structure.

The eQuest models were generated utilizing documentation from the Airport's existing design and construction combined with the drawing files for the planned expansion of the airport and additional hangars. These two sources provided the needed information to develop the geometry and building shell for both the existing portion of the terminal and the planned expansion. The baseline model, which models building design using standard building components, utilized ASHRAE 90.1-2016 Appendix G guidance²² to determine the inputs for the new building and assumptions required for the existing building. The analysis used local historical weather data known as "typical meteorological year", which is an average of data from 1969 to 1990. The full report of findings is in Appendix D.

The various energy conservation measures were modeled as hypothetical proposed simulations of the buildings. Note that the terminal building envelope improvements were limited to the expanded section of the building and were not included in the existing building.

²⁰ <http://www.doe2.com/equest/>

²¹ DOE-2.2 is building energy analysis software used to run eQuest and is available at <http://doe2.com/DOE2/>.

²² Goel, Supriya, Rosenberg, Michael I., and Eley, Charles. ANSI/ASHRAE/IES Standard 90.1-2016 Performance Rating Method Reference Manual. United States: N. p., 2017. Web. doi:10.2172/1398228.

Terminal Building

The baseline model was built using the existing conditions of the current Martha's Vineyard Airport Terminal based off the drawings from the initial construction of the building. The new expansion of the building aligns with ASHRAE 90.1 2016 and/or IECC 2018 prescriptive values for the building properties. The terminal building modeling included a version with three measures from Massachusetts Code C406: improved lighting (10% reduction), heat pump water heating, and improved HVAC. Various assumptions were made in the development of the model to complete the HVAC equipment and lighting power densities. The energy usage of the various building components are described in Appendix D.

The baseline and proposed U values for this model are:

- The baseline wall U value is 0.055 and the proposed wall U value is 0.03.
- The baseline and proposed window U values are both 0.42 and the solar heat gain coefficients (SHGC) are both 0.40.
- The roof U values are 0.032 for the baseline and 0.02 for the proposed.
- The baseline and proposed air infiltration rate is 0.40 ACH (Air Changes per Hour).

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and electrically heated systems assigned to building zones. The standard efficiency system for the air-cooled system meets the ASHRAE 90.1-2016 Table 6.8.1-1 requirements for the energy efficiency ratio (EER) for cooling. The heating system efficiencies for the system are derived from the ASHRAE 90.1-2016 as well. The baseline system does not have any heat or energy recovery. The lighting conditions are also mapped to the ASHRAE 90.1-2016 LPD space-by-space requirements used in the baseline model. No changes were made to be baseline model for the comparison.

ECM#10 – Proposed Design (Walls, Roof, Curtain Wall, VRF with ERV, Lighting, Lighting Controls)

ECM10 is the proposed design and incorporates a combination of the most impactful or the most likely energy conservation measures (ECMs) implemented to simulate the interactive effects of how they will impact the building performance. The measures included in this bundle are improved walls, roof, curtainwall, HVAC, and lighting. Each of the measures that are applied in this combination were modeled independently as prior ECMs for this study.

The ECM10 simulation had 13% energy savings over the baseline model. With the combined measures the total kwh savings is 60,700 kWh, and the GHG reductions are 39,940 lbs of CO₂e. See **Table 5-4** for a summary of results for the Baseline, ECM10, and ECM11.

Table 5-4 Terminal Building Energy Modeling Results

	EUI	kwh	GHG Elec lbs/CO2e	Savings - EUI (kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO2e	Savings by %
Baseline	67.8	451,060	296,797	0	0	0	0%
ECM10 - Combined Proposed (Walls, Roof, Curtain Wall, VRF with ERV, Lighting, Daylighting)	58.57	390,360	256,857	9.11	60,700	39,941	13%
ECM 11 - C406 Options - Combined (HVAC Improved 10% Lighting Improved 10%, HPWH)	65.52	436,720	287,362	2.15	14,340	9,436	3%

The modeling of specific components is discussed further below.

- The improved HVAC was modeled as a variable refrigerant flow system to heat and cool the existing terminal and the expansion for the new terminal section along with a basic 75% effective sensible and 70% latent energy recovery ventilator. The VRF system is assumed to be a Daikin system for purposes of the eQuest model. The curves associated with the Daikin systems were used in the model.
- The addition of daylight controls to either the ASHRAE LPD baseline efficiency lighting or improved lighting density spaces can improve on the overall savings of the project. Adding daylight sensors to ensure dimming of the lights in the areas that have windows and access to natural light will help save energy by using less power at each fixture. These sensors will need to be properly calibrated to ensure they are programmed correctly. The simulations were limited in this analysis to the daylighting controls. Additional controls could be added for occupancy or vacancy; however, the scope of this ECM was limited to only one type of control.
- Improved lighting efficiency in a building provides the benefit of lower electric consumption for that specific end use as well as non-energy benefits of reduced costs associated with maintenance and replacement lamps. The energy efficiency measure (EEM) for lighting improvement was modeled as a 20% reduction in LPD, which is lighting power density measured as watts per square feet of illuminated space from the ASHRAE 90.1-2016 baseline.
- The lighting controls improvement was modeled as the installation of daylight sensors in the large perimeter areas of the terminal, including the existing and the expansion.
- The improved envelope and curtainwall upgrades from the baseline condition provide a better insulated shell to decrease heating and cooling loads. The insulation values associated with the exterior wall assembly of an improved shell were modeled as an ASHRAE Table A 3.3 Assembly for Steel-Frame Walls. The overall U-Factor for the improved wall in the model is 0.04. This

represents an advanced framed 24" O.C. steel frame wall that is a 6-inch cavity depth insulated to R-21 and has exterior continuous insulation of R-14. The roof insulation would be upgraded from the above deck insulation of R-30 with a U-factor of 0.032 to be a U-factor of 0.022 or R-45 equivalent. The improvements to the curtainwall include a lower U-value for the glass, a greater solar heat gain coefficient (SHGC) and a thermally broken aluminum frame. The glazing used in the model is from the library and is specifically: 2667 - Center of Glass U-0.29 / SHGC – 0.29 with an NFRC U value – Glass + Frame equal to U- 0.4.

- The improved model also utilizes a heat pump water heater for the service water heating throughout the building. This measure shows no improvement for this model due to the energy input ratio used in the model. It is assumed that the savings would be similar to the EEM 11 water heating load reduction.

ECM#11 - C406 Comparison

Massachusetts regulations at 780 CMR 1300 amend the International Building Code for commercial structures. 780 CMR C406.1 stipulate that buildings following either ASHRAE 90.1 or IECC shall comply with at least three of the specified energy conservation measures. The options used in ECM11 are a 10% reduction in lighting power density done on a space-by-space case, improved HVAC equipment that is 10% more efficient in heating and cooling as per Table C403.3.2(2) in IECC 2018 as well as improved service hot water in the form of heat pump water heaters. The facility has an on-site food prep kitchen and restaurant that allows for claiming the service hot water improvement as an option. While the implementation of these measures together yielded savings in kWh and GHGs, the improvement of only 3% was well below that of the proposed case.

The energy savings associated with the ECM11 simulation was 3% EUI savings over the baseline model (**Table 5-5**). With the combined measures the total kWh savings is 14,340 kWh, and the GHG reductions are 9,435 lbs of CO₂e. The end use consumption for heating the building was 108,820 kWh, cooling was 44,620 kWh, and ventilation was 71,630 kWh, which was a significant increase over the baseline ventilation kWh.

Hangars

Two new aircraft hangars were modeled and compared to ASHRAE 90.1-2016 Appendix G and the prescriptive approach for inputs in the model. Hangar 2 does not have drawings at this time, so assumptions were made for the layout of the office area and window placement.

Hangar 1

Hangar 1 is 15,234 square feet with three small utility rooms. Hangar 1 is 43.7 feet tall with a pitched roof and a hangar door 30 x 116 feet. The building has windows at 30 feet and access doors on the side. At each entryway, the building has exterior lighting and an assumed indoor lighting. Hangar 1 is considered unconditioned. The hangar is unconditioned; it does not have HVAC equipment to maintain space temperatures, nor does it have equipment to maintain ventilation requirements.

- *Baseline Condition*

The building is modeled with a lighting power density of 0.90 watts (W) per square foot (ASHRAE90.1-2016 Building Type Workshop) and exterior lighting of 4.25 kW. These are code values for storage space

and exterior lighting for lights over an entrance. The exterior lighting is assumed to operate 12 hours per day and the interior lighting is on a schedule 15 hours per day during the summer and 12.5 hours per day during the winter. The winter hours were reduced to consider the off season for the island.

- *Lighting*

The lighting in Hangars 1 and 2 are modeled to code W/square foot. At this time, there are no detailed design drawings for either Hangar 1 or 2. Hangar 1 shows outdoor lighting, so savings were accounted for, but Hangar 2 is only a concept, so only code lighting above the hangar door was modeled.

- *Results*

Results are shown in **Table 5-5** below.

Table 5-5 Hangar 1 Energy Modeling Results

	Hangar 1	EUI	kwh	GHG Elec lbs/CO2e	Savings - EUI (kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO2e	Savings by %
Baseline	Baseline	17.07	1137901	74,873.82	0	0	0	0%
EEM 1	ECM1 Lighting	10.28	68540	45,099.32	6.79	42,520.00	29,774.50	40%

Hangar 2

Hangar 2 did not have drawings, but had guidelines provided by the design team. Hangar 2 is estimated to be 6,000 square feet in the hangar and 3,2000 square feet of office behind the building. The hangar is considered unconditioned and does not have any HVAC equipment located in the building. The office area is modeled according to ASHRAE90.1 with a baseline (System 2) heat pump. ASHRAE values were used for the building envelope and air infiltration.

- *Baseline Condition*

The building is considered a conditioned warehouse in ASHRAE90.1-2016 Appendix G with a lighting power density of 0.9 W/square foot. The office section of the warehouse is modeled as an office building with the a LPD of 1.1 W/square foot. The outdoor lighting for the hangar is modeled as 20 W/linear foot of entry way. The total lighting for the exterior lighting is 3.48kW for Hangar 2.

- *Lighting Upgrades and VRF Upgrades*

The lighting in Hangars 1 and 2 are modeled to code W/square foot. At this time, there no detailed design drawings for either Hangar 1 or 2. Hangar 1 shows outdoor lighting so savings were accounted for but Hangar 2 is only a concept so only code lighting above the hangar door was modeled.

A variable refrigerant flow system would be installed to heat and cool the office area of Hangar 2. The VRF system is assumed to be a Daikin system for the eQuest model. The performance curves associated with the Daikin systems were used in the model. The baseline values are code efficient EIRs for a standard heat pump.

- *Results*

Results are shown in **Table 5-6** below.

Table 5-6 Hangar 2 Energy Modeling Results

	Hangar 2	EUI	kwh	GHG Elec lbs/CO2e	Savings - EUI (kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO2e	Savings by %
Baseline	Baseline	10.28	68520	45,086.16	0	0	0	0%
EEM 1	ECM1 Lighting	8.35	55680	36,637.44	1.93	12840.00	8448.72	19%
EEM2	ECM2 VRF	7.99	53230	35,025.34	2.29	15290.00	10060.82	22%

The proposed energy conservation measures reflect the Airport's commitment to energy efficiency and will be considered when the project moves into the design stage. Since the projects are not scheduled to be constructed immediately (and the terminal not until 2028), it would be premature to commit to a specific set of measures, as technologies are evolving. The Airport commits to revisiting these measures during the final design process and implementing energy-efficiency measures which meet or exceed regulatory guidelines.

Cape Electric was contacted regarding incentives and recommended determining incentives using MassSave Path 2, Whole Building EUI Reduction Path for commercial new construction. The terminal and hangar projects combined could qualify for incentives; for example, an EUI reduction of 15 percent translates to an incentive of \$0.50/square foot for the project and \$0.05/square foot for the design team.

Development of lots 34 and 38 of the Business Park are privately financed. The Business Park was established over 20 years ago, with most lots developed between 1998 and 2001, followed by incremental building since that time. This area has long been targeted for commercial development and has received local permits and approvals for this use. Leases for these two lots were signed prior to the EIR/EA process and the Airport has limited control over building design. Nevertheless, the buildings incorporate many energy-saving (and emissions-reducing) features.

The building on Lot 38 has approximately 1000 square feet of office space that is insulated and heated with two mini-split heat pump units. The downstairs and upstairs bathrooms are insulated and heated with electric heaters. A portion of the warehouse includes plumbing for laundry machines and is heated with a propane heater. The rest of the building is unheated. The building has solar panels that produce enough electricity to support all of the building's electrical needs. The building on Lot 34 will be unheated except for the two bathrooms which will have electric wall heaters. All the lighting fixtures in both buildings are LED.

5.5.1.2.2 Direct Impacts from Mobile Sources

The proposed Projects would not have a substantial impact on mobile source GHG emissions, as described in Section 5.4.2.1 above.

The proposed apron parking improvements are intended to provide additional parking positions for transient aircraft that, in most circumstances, will be parked at the airport for multiple days, if not longer. As a result, when the parking positions are occupied for longer periods of time, there will be reduced turnover in most instances. Aircraft parked on the reconfigured Southwest Ramp will predominately include single engine and small twin-engine piston aircraft, which will park on either side of a taxilane and will taxi into and out of their locations under their own power. Aircraft parked on the reconfigured Southeast Ramp will include transient jets and twin-engine aircraft. Under the existing configuration, many aircraft are parked with their tails (and jets) facing outward from the apron and the Airport. Through the revised layout, most aircraft will utilize their power to pull into and pull out of parking spaces, reducing the use of ground vehicles while also moving the aircraft further from the apron edge and primarily facing the rear of the jets towards the airfield. As aircraft on the Southwest Ramp will predominately be propeller driven, once an aircraft is parked, the engines will be turned off and not turned back on until just before the pilot is prepared to taxi. On both aprons, should power be required for an aircraft while it is parked, the aircraft's auxiliary power unit (APU) could be utilized. However, the use of a ground power unit (GPU) will be prioritized and recommended by the Airport for aircraft that are parked and not completing take-off preparations or safety checks. GPUs are available for use by pilots at MVY and can be requested from the Fixed Base Operator.

It is anticipated that aircraft idling, or the use of APUs, will occur during required pre-flight checks, as well as in instances where aircraft have departed the apron or are prepared to depart the apron and are awaiting air traffic control (ATC) clearance to depart the Airport, particularly during periods of high congestion within both the airspace in the Martha's Vineyard area or at the destination airport. In these instances, where aircraft are loaded and pre-flight checks are complete and the aircraft is awaiting clearance to depart, the aircraft may remain idling in order to access the runway and takeoff when clearance is provided by ATC. The Airport has a posted time limit of 15 minutes for APU operation. Aircraft will continue to utilize the closest entrance and exit points on each apron and will taxi directly to or from the runways where they are operating. The proposed improvements will provide improved safety for aircraft operations, while also minimizing any additional taxiing requirements while at the Airport.

5.5.1.2.3 Direct Impacts from Land Alteration

Carbon sequestration is the process by which atmospheric CO₂ is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, foliage, and roots) and in soils. The MEPA Certificate states: "According to the GHG Policy [MEPA Greenhouse Gas Policy], projects that alter over 50 acres of land must include the analysis of the carbon loss associated with the removal of trees and soil disturbance during the construction period and loss of carbon sequestration." The MEPA Certificate further states that the purpose of this analysis is to develop an estimate of GHG emissions associated with land alteration rather than an exact accounting.

While the preferred alternatives propose less than 50 acres of land alteration (not counting impervious surfaces that will remain impervious), they propose to remove trees on approximately 33.9 acres, approximately 26.2 acres of which is forested and the remainder is shrub-dominated. Trees are known to sequester relatively large amounts of carbon. Therefore, a land alteration GHG analysis was completed, focusing on the project components involving vegetation management.

The amount of carbon or carbon sequestration that would be lost with the Projects were calculated using two factors: one for biomass removed and one for carbon sequestration lost.

For a one-time loss of carbon due to biomass removal, the USEPA estimates that nationally, 22 metric tons (25 short tons) of carbon are stored per acre of forest land in above-ground biomass²³. This equates to a one-time loss of 655 short tons of carbon stored in biomass from the alteration of forested land. Based on the average U.S. forest, the USEPA has estimated that 0.9 short ton of CO₂ are sequestered by one acre of forest annually²⁴. As such, the annual carbon sequestration lost due to the Project's land alteration is estimated to be 24 short tons per year.

The actual biomass lost is likely to be substantially lower than this, for several reasons:

- Most of the trees in this area are less than 40 feet tall and therefore store less biomass than forests located elsewhere in the U.S. and referenced in the USEPA data.
- The soils are sandy and support lower growth rates than elsewhere.
- Portions of this area are dominated by shrubs with few trees to be currently removed. They are included as future vegetation management due to potential growth projections.
- When the project is completed, all of the cut areas will retain vegetation, which may include tall shrubs (such as scrub oak), shrubs which are occasionally mowed, and maintained grass areas. These areas presumably will provide some ongoing carbon sequestration in biomass and in photosynthesis.

5.5.1.3 Construction Impacts

Construction activities associated with the proposed Projects would result in a temporary increase in GHG emissions. The primary source of potential GHG emissions from these activities would be from the engines of construction equipment. GHG emissions from the operation of construction machinery are short-term and not generally considered substantial.

5.5.1.4 Indirect/Secondary Impacts

The proposed Projects are not expected to result in or induce projects or other activities that would result in a substantial increase to GHG emissions. GHG emissions associated with the use of electricity are considered indirect emissions and discussed above with respect to stationary source emissions.

5.5.1.5 Mitigation

Mitigation could consist of some combination of the building design measures discussed above.

The Airport is also currently working with a solar power contractor to investigate the feasibility of solar installations on existing buildings (specifically the Aircraft Rescue and Fire Fighting building) and parking lots (canopies). The renovated terminal would include solar-ready design and technology. The Airport intends to install two or three electric vehicle charging stations in the near future. It will continue to support bus transportation and discourage single-occupancy vehicle usage.

²³ USEPA. (2020). "Greenhouse Gases Equivalencies Calculator- Calculations and References." Retrieved 2 May 2020, from <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>

²⁴ USEPA. (2020). "Greenhouse Gases Equivalencies Calculator- Calculations and References." Retrieved 2 May 2020, from <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>

5.5.2 Adaptation and Resiliency (MEPA)

As described in Section 4.7, by mid-century, Martha's Vineyard is expected to be warmer, to likely have more precipitation with more frequent and intense storms, to be at greater risk of wildfire, and to experience sea level rise. The impacts of climate change on the proposed projects are described below.

Sea level rise

Martha's Vineyard Airport is located within the Massachusetts Coastal Zone at an approximate elevation of 67 feet above sea level. Massachusetts Office of Coastal Zone Management sea level rise web mappers were utilized to evaluate potential climate change effects of sea level rise on the proposed Project. Due to its elevation and its centralized location on Martha's Vineyard, sea level rise will not directly impact the Airport.

Precipitation and Storm Events

A 24-hour, one-percent annual chance ("100-year") storm event in Edgartown would have 7.38 inches precipitation, as calculated by the Northeast Regional Climate Center. This is approximately 4 percent higher than the 24-hour, one-percent annual chance storm predicted for 2008²⁵. The Airport is on relatively level terrain with well-draining sandy soils and is not within a mapped floodplain.

The No-Build Alternative would not change existing Airport infrastructure or drainage patterns. This would not incorporate the Proposed Action's reductions in impervious surfaces or improvements in stormwater management, and could result in relatively more erosion or other effects of large storm events.

The Proposed Action's stormwater management systems will be designed to meet state standards, including peak discharge rates. The proposed system will capture and treat runoff from proposed new pavement as well as areas of existing pavement. The net reduction in impervious surfaces combined with the proposed stormwater treatment will substantially improve stormwater management and thereby reduce, compared to the No-Build, the adverse effects of storm events.

Because of the Airport's highly permeable soils and its topography, small increases in precipitation amounts or intensity are not expected to exceed the ability of the infiltration infrastructure and existing soils to infiltrate stormwater runoff. However, during final design of each project, additional analysis will be done to ensure BMPs control runoff, address peak rate attenuation, provide groundwater recharge, and improve water quality within the design life (typically 20 years) of each project, considering current and future climate conditions.

Wildfire

Fire has been actively suppressed on the island historically, allowing dead vegetation to accumulate, which increases the potential severity of wildfires. Wildfire is already a concern on the island, and in 2020, the Martha's Vineyard Commission obtained a federal grant to help prepare a comprehensive plan that assesses wildfire risk and identifies mitigation measures. The resulting Wildfire Protection Plan will identify and map wildfire hazards on the island, establish a guide for ranking priority properties to

²⁵ <http://precipchange.eas.cornell.edu/index.php?page=map&ryr=2&year=2018&color=amt&go=Refresh+Map>

address, provide information on strategies for addressing fire hazards, and address other wildfire-related needs.

The proposed tree removal and subsequent vegetation management will consider the implications of the work on the potential for wildfire. The Airport will review the Wildfire Protection Plan when it becomes available to ensure wildfire protection is taken into consideration in the design process. The Airport will also include DCR fire protection staff in its coordination with DCR in developing project plans. Two likely management methods are prescribed burns and periodic mowing, both of which would reduce the amount of dead, dry vegetative debris and therefore reduce the potential severity of wildfires. Prescribed burns are currently employed on the island and, if done properly, can be accomplished without significantly increasing the risk of wildfires.

Construction Phase

During construction, the Airport will work with its contractors to develop construction management plans and strategies that address the known climate hazards, as applicable, for the purpose of protecting construction workers, equipment, and other assets. Such strategies may include stabilizing exposed areas and suspending construction during high wind events.

Indirect Impacts

The proposed Projects are not expected to result in or induce projects or other activities that would affect the Airport or other local entities in their abilities to anticipate, cope with, and rebound from events and trends related to known climate change hazards. Improved stormwater management could reduce the potential hazards, particularly for properties downgradient or downstream of the Airport. No adverse indirect/secondary impacts are anticipated for climate resiliency.

5.6 NATURAL RESOURCES AND ENERGY SUPPLY (NEPA)

FAA Order 1050.1F requires the review of the natural resource (e.g., water, asphalt, aggregate, wood, etc.) demands and energy requirements of a Proposed Action's construction, operation, and maintenance. Accordingly, this section assesses the proposed Projects in terms of their potential to use such resources in exceedance of available and future supplies. The FAA has not established a significance threshold for this environmental resource category. Energy usage is also addressed in Sections 5.4 and 5.5 above.

5.6.1 No-Build Alternative

The No-Build Alternative assumes that the existing Airport footprint and infrastructure remain unchanged. This alternative would not involve the usage of sand, gravel, fuel, and building materials needed for the Proposed Action. However, it would not result in the integration of more energy-efficient systems and technology to reduce energy consumption. It also would not provide more efficient vehicle traffic movements proposed with the Proposed Action.

Maintenance activities performed on an as needed basis would also continue to necessitate minor quantities of construction materials.

5.6.2 Proposed Action

The proposed Projects would not cause an increase in demand for natural resources or energy that would exceed available supplies. Energy demand for the proposed Projects, with the exception of the proposed building projects (Business Park Lots 34 and 38, Terminal Renovation, and Aircraft Hangar Development), is anticipated to be consistent with existing conditions. Potable water consumption associated with the proposed building projects is expected to be comparably small when considered against the entire Airport's water consumption, though the Airport will be incorporating sustainable measures to reduce water consumption (i.e., all new plumbing fixtures would be low-flow/flush). The terminal will be larger but will be servicing the same numbers of passengers and employees as under the No-Build. The hangars will have a small number of people at any given time. Business Park Lot 38 is an event service, renting out tents and similar equipment. The usage of Business Park Lot 34 is expected to be similar to Lot 38, and neither lot is, or is expected to be, a retail operation with frequent traffic. The building on Lot 38 uses a combination of heat pumps, electric heaters, and a propane heater. The rest of the building is unheated. The building has solar panels that produce enough electricity to support all of the building's electrical needs. The building on Lot 34 will be unheated except for the two bathrooms which will have electric wall heaters. All the lighting fixtures in both buildings are LED.

Water consumption is not expected to exceed the available supply. The terminal will be larger but will be servicing the same numbers of passengers and employees as under the No-Build. The hangars will have bathrooms and possibly some indoor/outdoor water usage. Business Park Lot 38 is an event service with bathroom and laundry facilities that uses less than 10,000 gallons of water per month off peak and up to 35,000 gallons/month peak. Lot 34 will be a similar business but will have bathrooms but no laundry. The Airport will be incorporating sustainable measures to reduce water consumption (i.e., all new plumbing fixtures would be low flow/flush). The Oak Bluffs Water District Superintendent reports there will be a sufficient amount of water available for the proposed projects (M. Silvia, email dated 5/12/2021).

Negligible to minor quantities of waste are expected to be generated during operations of the proposed building projects. The Airport has its own wastewater treatment facility. According to the facility's managers, the wastewater treatment facility the capacity to handle 37,000 gallons per day. The highest flow days are around 25,000 gallons per day (including Lot 38), so there is plenty of capacity for additional flows. Furthermore, wastewater facility managers say there is relatively little water usage or wastewater flow from hangars. For these reasons, it is assumed there is sufficient wastewater capacity to support the proposed projects.

Water and wastewater will continue to be managed according to applicable federal, state, and local laws and regulations.

Earth materials needed to construct the Proposed Action are listed in **Table 5-7**. These include existing soils (largely sand and gravel) to be excavated, gravel to be deposited, and topsoil to be placed. Efforts will be made to preserve and reuse existing topsoil. There is a at least one gravel pit on the island and this resource is not in short supply regionally.

No indirect impacts are expected in relation to natural resources and energy supply.

Table 5-7 Estimated Earthwork and Earth Materials for the Proposed Action

Project	Alt.	Excavation (CY)	Embankment (CY)	Gravel Borrow (CY)	Crushed Stone (P-209) (CY)	Topsoil (T-905) (SY)
Aircraft Hangar Development	2	1,400.00			1,100.00	5,150.00
Improve Fuel Farm Access and Safety	3	1,600.00			1,000.00	1,450.00
Runway 15-33 and Taxiway E Reconstruction	5-5	10,500.00	2,175.00		6,300.00	86,000.00
Access Road Improvements – Right- Turn Lane	8-1	400.00		230.00		750.00
Improve Aircraft Parking and Movement Areas – Southeast and Southwest Ramps	9-3	5,800.00			4,400.00	1,900.00
TOTAL		14,300.00	2,495.00	230.00	8,600.00	95,850.00

Notes:

CY = cubic yards; SY = square yards

The Business Park Lots are either developed or prepared for development and will be completed by others.

Other projects are not expected to require earthwork or earth materials.

Construction of the proposed Projects would result in the temporary consumption of natural resources (e.g., construction materials and water) and energy supplies to power construction vehicles and equipment. A minor temporary increase in water demand would be associated with the control of fugitive dust and soil stabilization. The Airport anticipates adequate capacities of such resources to support the construction of the proposed Projects.

No adverse impacts to natural resources and energy supply are anticipated as a result of the proposed Projects. Accordingly, the Airport does not propose any mitigation measures beyond the energy efficiency measures discussed above and in Section 5.5 and in Chapter 6. There will also be the beneficial measures of installing LED technology into all new or replaced airfield lighting and signage, where appropriate, and incorporating low flow/flush into the proposed new buildings.

5.7 NOISE (MEPA/NEPA)

Aircraft noise emissions, inherent to the operation of an airport, can affect the compatibility of airports and surrounding properties, particularly in the presence of noise-sensitive receptors. Churches, hospitals, schools, amphitheaters, and residential districts are receptors that are sensitive to elevated noise levels. Recreational areas and some commercial uses are moderately sensitive to elevated noise levels.

According to FAA Order 1050.1F, a significant noise impact would occur when a proposed action would increase noise by day-night average sound level (DNL) 1.5 decibels (dB) or more for a noise sensitive area resulting in noise exposure of DNL 65 dB or greater with the proposed action.

5.7.1 No-Build Alternative

As described in Section 4.9, a 2012 noise study found that noise in residential areas around the Airport were below the FAA residential noise impact level of 65 dBA, and that noise levels had decreased between 1999 and 2012. The No-Build Alternative does not preclude changes in the number of flights, flight patterns, aircraft types, or other factors that may affect noise. However, because prior noise levels were below impact thresholds, noise impacts remain unlikely. Furthermore, the Airport's "Noise Analysis Mitigation Program" initiated in 2003 would remain in place.

5.7.2 Proposed Action

The Proposed Action is not anticipated to increase aircraft operations nor will it substantially alter aircraft movement patterns. Therefore, it is not expected to affect noise levels or result in noise impacts at or around the Airport. However, as with the No-Build, the Proposed Action does not preclude changes in the number of flights, flight patterns, aircraft types, or other factors that may affect noise. The Proposed Action also would not alter the existing Noise Analysis Mitigation Program.

The Proposed Action will result in the removal of trees on Airport property, in adjacent easements, and potentially in the State Forest. Recreational trails are located in and near proposed vegetation management areas within the Runway 6 and 24 approaches. These include portions of the fire lanes and shared-use paths that run along or adjacent to all four sides of Airport property. Tree removal will make air traffic more visible to those on the ground, affecting their enjoyment of the State Forest. It is sometimes assumed that tree removal will result in higher noise levels around airports. However, the greatest noise levels come from airborne aircraft, where trees or other vegetation would have less

ability to block noise from people on the ground. The noise effects are likely to be seen as an aesthetic nuisance but are not expected to rise to the level of a noise impact based on FAA criteria.

5.7.3 Construction Noise Impacts

The FAA does not provide significance thresholds for construction noise. Noise control within the Commonwealth of Massachusetts is regulated through 310 CMR 7.10. Specific to construction, no person shall cause unnecessary emissions of noise from “construction and demolition equipment which characteristically emit sound but which may be fitted and accommodated with equipment such as enclosures to suppress sound or may be operated in a manner so as to suppress sound...” There are no quantitative thresholds specified within the regulations pertaining to construction noise.

Temporary noise effects would result from construction activities and include noise generated from heavy equipment, truck traffic, and other construction activity. Construction activities would be carried out during normal daylight hours.

Roadways carrying worker vehicles and heavy truck traffic to and from the work area would experience an increase in traffic during certain periods of the day, however these traffic increases would be temporary in nature and not result in significant impacts to receptors adjacent to these routes. (See Section 5.8.3 below for more details on traffic generated by construction.) Noise generated from on-site construction equipment would be variable depending on the construction activity occurring on the project site. On-site construction activities include the demolition and construction of various airport facilities including demolition and construction of pavement, terminal building renovation, construction of the hangars, and tree removal.

5.7.4 Indirect/Secondary Impacts

The proposed Projects are not expected to result in or induce projects or other activities that would result in an increase to noise, including those with the potential to negatively impact traffic conditions. No indirect/secondary impacts are anticipated for noise and noise-compatible land use.

5.8 TRAFFIC AND SURFACE TRANSPORTATION (MEPA/NEPA)

As required by the MEPA regulations under 301 CMR 11.07, this DEIR/EA assesses the potential impacts of the proposed Projects on traffic and pedestrian and bicycle transportation. As specifically called out in the Secretary's Certificate on the proposed Projects' ENF, this DEIR/EA identifies construction-period impacts and mitigation, as necessary, relative to traffic.

In accordance with FAA Order 1050.1F and FAA Order 5050.4B paragraph 706(e), the FAA requires project proponents to consider surface transportation when a proposed action has the potential to disrupt traffic patterns and substantially reduce the level of service of roads serving an airport and its surrounding communities. This section addresses this requirement in satisfaction of NEPA.

5.8.1 No-Build Alternative

Under the No-Build Alternatives, the Airport would not implement the proposed Projects. The number and types of vehicles accessing the Airport would be similar to existing trends and projections. The Airport access road would continue to have congestion and traffic delays in certain seasons and at certain times of the day.

5.8.2 Proposed Action

The Proposed Action's effects on vehicular traffic were listed in Section 5.4.2.1. Business Park Lots 34 and 38 and the Aircraft Hangar Development would each result in additional traffic, but the amount is small relative to local traffic. The Southwest Ramp reconfiguration will replace a portion of the lost vehicular parking spaces and will not in and of itself generate additional traffic. Lot 38 is not a retail operation and the hangars are expected to accommodate up to 15 shift workers passing through twice per day. The new right-turn lane proposed for Access Road Improvements would not substantially improve the functioning of this intersection, but would reduce waiting times for right-turning traffic and thereby improve traffic flow. The Airport has an existing shared-use path intersecting Airport Road. During final design of proposed Airport Road and terminal projects, ways to safely accommodate all roadway users, including pedestrians and bicyclists, will be considered.

5.8.3 Construction Impacts

Construction of the proposed Projects, including all staging areas, would be located on Airport property. As the Airport is on an island, materials are expected to be barged to and from the island, likely between either Woods Hole or Hyannis and the D.M. Packer Co. barge terminal in Vineyard Haven. From the barge terminal, material would likely be trucked to the Airport via Beach Road, Beach Street, State Road, Edgartown-Vineyard Haven Road, and Barnes Road. From Barnes Road, trucks would be via either directly access the Airport from Barnes Road or turn onto Edgartown-West Tisbury Road and access the Airport via the Business Park, Airport Road, or other access points. In some cases, the trucks would first go to a processing facility on Edgartown-Vineyard Haven Road. Barnes Road, Edgartown-Vineyard Haven Road, and Edgartown-West Tisbury Road are predominately residential with areas of commercial and open space land uses. None of the roadways anticipated for use by construction vehicles would be temporarily closed or otherwise diverted. Airport access points, travel routes, and times of day are sometimes modified to minimize noise and disruption on local roads.

The numbers of construction vehicles were estimated based on the anticipated construction phasing of the proposed Projects (**Table 5-8**). Most projects are expected to require 50 or fewer truck round trips per quarter. The Runway 15-33 and Taxiway E Reconstruction projects are combined expected to require 376 truck round trips in the first quarter of 2023. The number of barges required for the proposed Projects are expected to range from zero to 45 (associated Runway 15-33 and Taxiway E Reconstruction in 2023). The number of workers required for each project (**Table 5-9**) is less than 100 person-days per quarter except for the Runway 15-33 and Taxiway E Reconstruction Project in 2023 (423 person-days in Q1) and the Aircraft Hangar Development in 2024 (159 person-days).

To reduce construction-related traffic for the construction of the proposed Projects from these baseline levels, the Airport will encourage its construction companies to prepare transportation management plans or other development programs or incentives that aim to reduce worker travel by single-occupancy vehicle to the Airport. Such programs may include the provision of off-Airport parking and shuttle services.

Based on the anticipated volumes of construction-related traffic, along with the Airport's proposed minimization measures, construction of the proposed Projects is not expected to increase traffic congestion or otherwise contribute to a degradation of roadway level of service.

5.8.4 Mitigation Measures

The Airport will continue to promote the bus service as an alternative to single-occupancy vehicles.

The Airport will coordinate with the Martha's Vineyard Joint Transportation Committee and its Bicycle and Pedestrian Advisory Committee to ensure the continued and safe use of the shared-use paths on Barnes Road and Edgartown-West Tisbury Road. The Airport will also coordinate with the towns of Edgartown and West Tisbury on any construction-period signage and lighting that may be needed for safe traffic conditions, including the safe use of the shared-use path. Additionally, the Airport will encourage its contractors to prepare transportation management plans or other development programs or incentives that aim to reduce worker travel by single-occupancy vehicle to the Airport. Such programs may include the provision of off-Airport parking and shuttle services.

The Airport generally aims to reduce single-occupancy vehicle trips by promoting the services of the Martha's Vineyard Transit Authority's bus service, and utilizing taxi and livery services that are also available to access the Airport. The Airport will coordinate with the Authority to ensure construction traffic does not disrupt bus travel or stops.

Table 5-8 Amount of Truck and Barge Traffic Required for Each Project, per Year and Construction Quarter (Round Trips from Site, Barges in Parentheses)

Project	'22 Q1	'22 Q2	'23 Q1	'23 Q2	'24 Q1	'24 Q2	'28 Q1	'28 Q2	'28 Q3	'28 Q4	'29 Q1	'29 Q2	'30 Q1	'30 Q2
Business Park Lots 34 and 38														
Improve Fuel Farm Access and Safety	38 (3)	24												
Aircraft Hangar Development	12 (3)	67												
Airspace Vegetation Management			44											
Runway 15-33 and Taxiway E Reconstruction			376 (44)	46										
Terminal Building Renovation							175 (21)	175 (21)	175 (21)	175 (21)	175 (21)	175 (21)		
Improve Aircraft Parking and Movement Areas – Southeast Ramp											44 (25)	44 (0)		
Access Road Improvements – Right-Turn Lane														50

Notes:

Business Park Lots 34 and 38 are at least partially constructed and will be completed by others.

No projects are proposed for construction in 2025 through 2027.

No construction is currently proposed in Q3 or Q4 except in 2028.

Table 5-9 Number of Laborers Needed for Each Project, per Year and Construction Quarter (Work Days per Quarter)

Project	'22 Q1	'22 Q2	'23 Q1	'23 Q2	'24 Q1	'24 Q2	'28 Q1	'28 Q2	'28 Q3	'28 Q4	'29 Q1	'29 Q2	'30 Q1	'30 Q2
Business Park Lots 34 and 38														
Improve Fuel Farm Access and Safety	26	47												
Aircraft Hangar Development	18	159												
Airspace Vegetation Management			57											
Runway 15-33 and Taxiway E Reconstruction			423	67										
Terminal Building Renovation							600	600	600	600	600	600		
Improve Aircraft Parking and Movement Areas – Southeast Ramp											42	77		
Access Road Improvements – Right-Turn Lane														71

Notes:

Business Park Lots 34 and 38 are at least partially constructed and will be completed by others.

No projects are proposed for construction in 2025 through 2027.

No construction is currently proposed in Q3 or Q4 except 2028.

5.9 BIOLOGICAL RESOURCES

FAA Order 10.50.1F lists several factors to consider for biological resources, including an action's potential to: have long-term or permanent loss of unlisted plant or wildlife species; adversely affect state-listed species and other special status species; substantially impact native species' habitats or populations; and adversely impact a species' reproductive success and mortality rates. The FAA has not established a significance threshold for non-federally listed species. As noted in Chapter 4, one federally listed species (northern long-eared bat) and 30 state-listed species are known to occur on or near Airport property, and most of the land area at the Airport is within State-designated Priority Habitat of Rare Species (and some within Estimated Habitat of Rare Wildlife) for rare plant, insect, and bird species.

5.9.1 No-Build Alternatives

The No-Build Alternatives would not result in any new construction; therefore, there would be no disturbance of soils or state-protected species habitat. There would be no direct, construction-period, or indirect/secondary impacts to biological resources under the No-Build Alternatives.

5.9.2 Proposed Action

5.9.2.1 Direct Impacts

The Proposed Action includes large areas of pavement that will be reconstructed and remain pavement (Runway 15-33 and Taxiway E) as well as large areas of grass that will be regraded and tree and shrub areas that will be cut. **Table 5-10** shows the total amount of land to be regraded; new, removed, and net change in impervious surface; and total acreage of proposed tree cutting. **Table 5-11** shows these totals for Priority and Estimated Habitat. **Table 5-12** shows how much of the affected land is grass, shrub, and forested land, separately for Priority and non-Priority Habitat. **Table 5-13** shows impacts to mapped shrubland and forest natural communities mapped within the runway approaches, primarily a function of vegetation management such as tree removal.

Overall Habitat Impacts

Overall, there will be a reduction of approximately 1.9 acres of impervious surfaces, due mainly to shoulder removal on Runway 15-33 and Taxiway E. These areas will be converted to grass. Approximately 12.0 acres of grass will be regraded, most of it along Runway 15-33 to meet FAA safety area guidelines. This will be a temporary impact.

Approximately 33.1 acres of trees will be cut, mostly for maintaining projected airspace, as shown in **Figures 5-1 through 5-4**. An additional 1.0 acre will be cut for the Southwest Ramp reconfiguration. Portions of these areas are dominated by shrubs which will be left in place, so the actual cutting area will be somewhat less, but it will be managed to prevent tree regrowth. Approximately 3.2 of the 33.1 acres are proposed within the State Forest, outside of current easements. An additional 13.5 acres are within a large easement in the Runway 24 approach, where the status of the easement is uncertain. Existing and potential easement areas are depicted on **Figure 5-5**. Some of the vegetation management areas will be converted to grass and some to shrubs, with the acreages to be determined in consultation with the Department of Conservation and Recreation and the Natural Heritage and Endangered Species Program. The project will therefore result in an overall increase in both grass and shrub habitat. There will be a decrease in forested habitat.

The tree and shrub areas affected by the project were described in Chapter 4 and include native oak forests, mixed pitch pine and oak forests, successional white pine forests, areas dominated by tall shrubs (mainly scrub oak), and mixtures of these habitat types. The vegetation management will affect 17.4 acres of Coastal Forest/Woodland, an oak-dominated community; 5.2 acres of a relatively homogeneous successional white pine forest; 7.1 acres of Scrub Oak Shrubland; and lesser amounts of other mixed forest and forest/shrub communities. Coastal Forest/Woodland is the most common habitat type on the island and regionally, and is not rare, although it may support rare species, as discussed further below. The white pine was not historically a dominant tree species in this area but has taken advantage of fire suppression. It may be advantageous for rare species and other plant and animal life to remove the fast-growing colonial species and restore native habitat to some of the areas to be cut.

Table 5-10 Approximate Areas of Overall Disturbance for Proposed Action (Acres)

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETATION MGMT.
1. Business Park Lots 34 and 38		1.2		1.2	
2. Aircraft Hangar Development	0.8	1.0		1.0	
3. Improve Fuel Farm Access and Safety	0.2				
4A. Airspace Vegetation Management - Runway 6	0.3				3.7
4B. Airspace Vegetation Management - Runway 24					19.9
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275', Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	10.1	1.0	7.0	-6.0	9.5
7. Terminal Building Renovation					
8-1. Access Road Improvements - Right-Turn Lane	0.2	0.1		0.1	
9-2B and 9-3. Aircraft Parking and Movement Areas - New Stub Taxiway to Southeast Ramp and Reconfigure Southwest Ramp	0.5	2.5*	0.8	1.9	1.0*
TOTAL	12.0	5.8	7.7	-1.9	34.1

*1.0 acres of vegetated land to become impervious is forested and therefore also in the Vegetation Management column.

Table 5-11 Approximate Areas of Disturbance in Priority Habitat for Proposed Action (Acres)

PROJECT	EXISTING VEGETATED LAND TO BE REGRADED	EXISTING VEGETATED LAND TO BECOME IMPERVIOUS	EXISTING IMPERVIOUS RETURNED TO GRASS	NET NEW IMPERVIOUS	VEGETATION MGMT.
1. Business Park Lots 34 and 38		1.2		1.2	
2. Aircraft Hangar Development	0.7	1.0		1.0	
3. Improve Fuel Farm Access and Safety	0.1				
4A. Airspace Vegetation Management - Runway 6	0.3				2.8
4B. Airspace Vegetation Management - Runway 24					19.9
5-5. Runway 15-33 and Taxiway E Reconstruction - Displace Runway 15 Threshold 275 feet, Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	10.1	1.0	7.0	-6.0	9.5
7. Terminal Building Renovation					
8-1. Access Road Improvements - Right-Turn Lane					
9-2B and 9-3. Aircraft Parking and Movement Areas - New Stub Taxiway to Southeast Ramp and Reconfigure Southwest Ramp	0.3	0.2	0.2	0.0	
TOTAL	11.4	3.4	7.2	-3.8	32.2

Table 5-12 Approximate Impacts of Proposed Action to Grass, Shrub and Tree Areas (Acres)

	PRIORITY HABITAT GRASSED LANDS	PRIORITY HABITAT SHRUBS	PRIORITY HABITAT FORESTED LANDS	NON- PRIORITY HABITAT GRASSED LANDS	NON- PRIORITY HABITAT SHRUBS	NON- PRIORITY HABITAT FORESTED LANDS
1. Business Park Lots 34 and 38			1.2			
2. Aircraft Hangar Development	1.8			0.1		
3. Improve Fuel Farm Access and Safety	0.1			0.1		
4A. Airspace Vegetation Management - Runway 6			2.8			0.9
4B. Airspace Vegetation Management - Runway 24		3.1	16.8			
5-5. Runway 15-33 and Taxiway E Reconstruction - Reduce Runway 15 Distance by 275 feet, Construct Partial Parallel Taxiway E and Remove Vegetation Obstructions	9.4	4.0	5.5			
7. Terminal Building Renovation						
8-1. Access Road Improvements – Right-Turn Lane				0.2		
9-2B and 3. Improve Aircraft Parking and Movement Areas – New Stub Taxiway on Southeast Ramp and Reconfigure Southwest Ramp	0.5			1.1	0.4	1.0
TOTAL WITH PREFERRED ALTERNATIVES ONLY	11.8	7.1	26.3	1.5	0.4	1.9

Table 5-13 Approximate Impacts of Proposed Action to Mapped Natural Communities within Runway Approaches (Acres)

RUNWAY APPROACH	COASTAL FOREST/ WOODLAND	PITCH PINE - OAK FOREST/ WOODLAND HABITAT	PITCH PINE - SCRUB OAK COMMUNITY	SCRUB OAK SHRUBLAND	SUCCESSIONAL WHITE PINE FOREST	MIXED SUCCESSIONAL FOREST
RUNWAY 6	3.7	0.0	0.0	0.0	0.0	0.0
RUNWAY 24	10.8	0.0	0.0	3.1	5.2	0.7
RUNWAY 15	0.4	1.1	0.4	2.0	0.0	0.0
RUNWAY 33	2.5	1.0	0.0	1.9	0.0	0.0
TOTAL	17.4	2.2	0.4	7.1	5.2	0.7

Note: Natural communities were mapped in runway approach areas. There may be additional disturbance to vegetated lands, such as the open grassland on the airfield, that were not mapped as natural communities but could meet the criteria for certain natural communities.

Differences between totals and the sum of the columns are due to rounding.



●

TREE SURVEY POINT WITH TREE-TOP ELEVATION

TREE REMOVAL AREA

APPROXIMATE AIRPORT PROPERTY LINE

APPROXIMATE EASEMENT LINE

RSA

ROFA

MOW AREA

COASTAL FOREST/WOODLAND

PITCH PINE - OAK FOREST/WOODLAND HABITAT

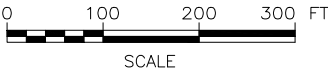
PITCH PINE - SCRUB OAK COMMUNITY

SCRUB OAK SHRUBLAND

SUCCESSIONAL WHITE PINE FOREST

MIXED SUCCESSIONAL FOREST

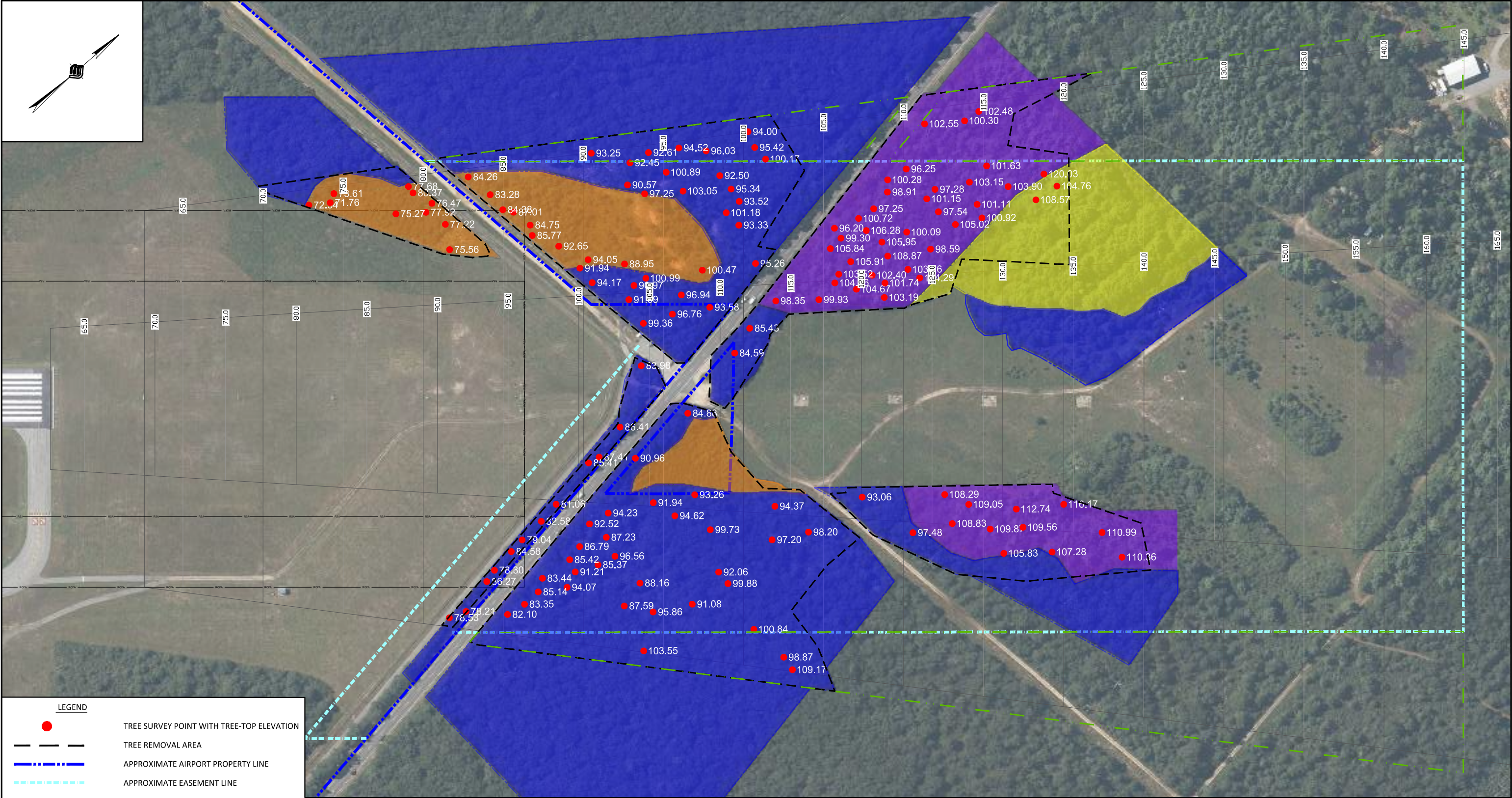
- NOTES:
- NATURAL COMMUNITY MAPPING FROM FIELD STUDIES CONDUCTED BY GZA GEOENVIRONMENTAL, INC. IN 2020. MCFARLAND JOHNSON MADE MINOR CHANGES TO EXTEND COMMUNITY MAPPING TO LIMITS OF CLEARING.
 - TREE ELEVATIONS ARE FROM 2019 TREE-TOP SURVEY.



FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

	REV	DATE	DESCRIPTION	BY
<div><div></div><div><div>McFarland Johnson</div><div>53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301</div></div></div>				
<div><div><div><div>MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT</div><div>NATURAL COMMUNITY CLASSIFICATIONS - RUNWAY 6</div></div><div><div>SCALE: 1" = 100'</div><div>DESIGN: SRS</div></div><div><div>DRAWN: DMP</div><div>PROJECT: 18226.07</div></div><div><div>CHECKED: MTO</div><div>DATE: NOVEMBER 2020</div></div></div></div> <div>5-1</div>				



LEGEND

TREE SURVEY POINT WITH TREE-TOP ELEVATION

TREE REMOVAL AREA

APPROXIMATE AIRPORT PROPERTY LINE

APPROXIMATE EASEMENT LINE

POTENTIAL FUTURE EASEMENT LINE

RSA

RUNWAY SAFETY AREA

RFA

RUNWAY OBJECT FREE AREA

MOW AREA

COASTAL FOREST/WOODLAND

PITCH PINE - OAK FOREST/WOODLAND HABITAT

PITCH PINE - SCRUB OAK COMMUNITY

SCRUB OAK SHRUBLAND

SUCCESSIONAL WHITE PINE FOREST


MIXED SUCCESSIONAL FOREST

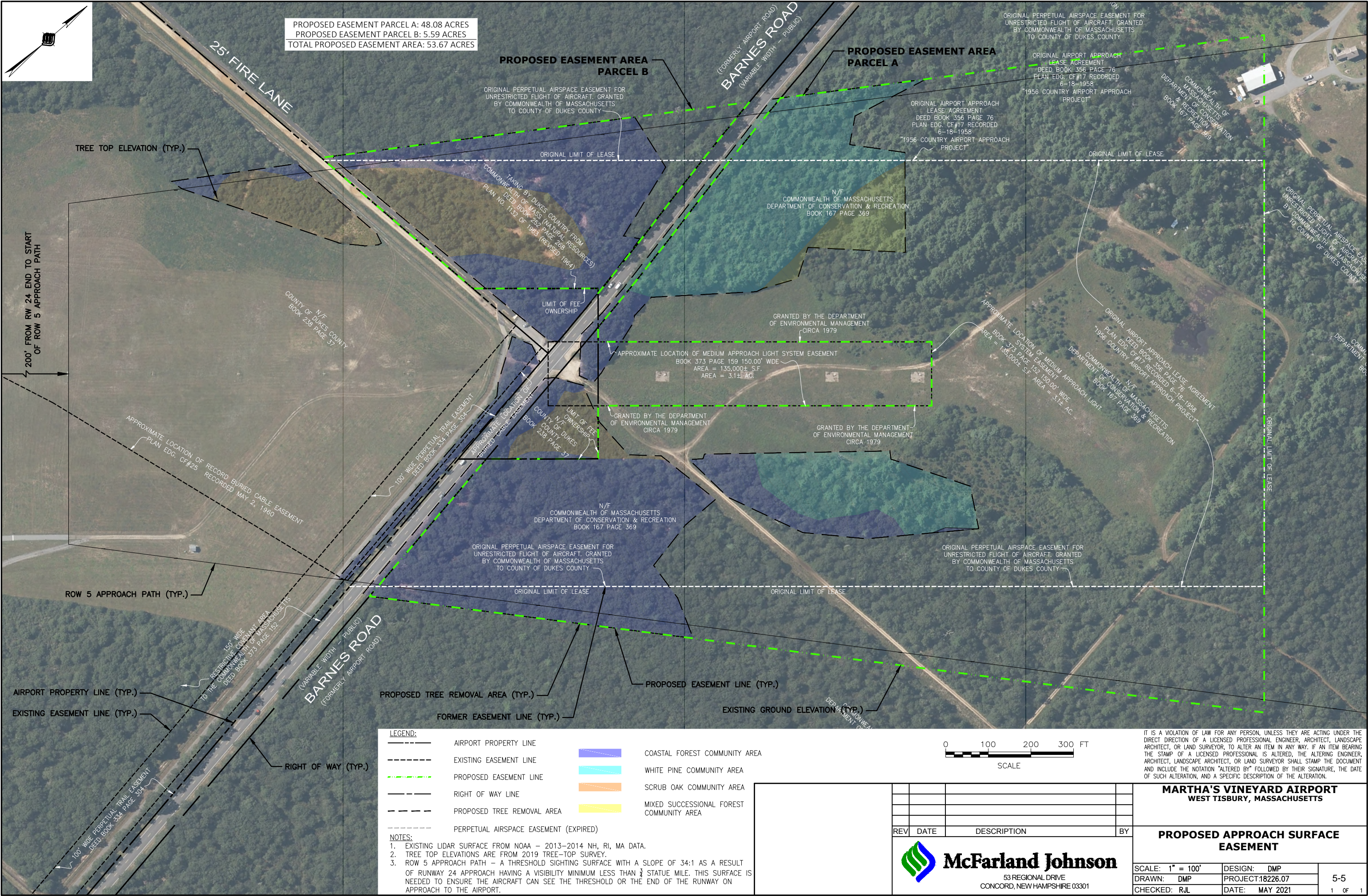
NOTES:

- NATURAL COMMUNITY MAPPING FROM FIELD STUDIES CONDUCTED BY GZA GEOENVIRONMENTAL, INC. IN 2020. MCFARLAND JOHNSON MADE MINOR CHANGES TO EXTEND COMMUNITY MAPPING TO LIMITS OF CLEARING.
- TREE ELEVATIONS ARE FROM 2019 TREE-TOP SURVEY.

FINAL EIR/EA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

	REV	DATE	DESCRIPTION	BY
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				
MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASSACHUSETTS ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT				
NATURAL COMMUNITY CLASSIFICATIONS - RUNWAY 24				
SCALE: 1" = 100'		DESIGN: SRS		5-2
DRAWN: DMP		PROJECT: 18226.07		
CHECKED: MTO		DATE: NOVEMBER 2020		



PROPOSED EASEMENT PARCEL A: 48.08 ACRES
PROPOSED EASEMENT PARCEL B: 5.59 ACRES
TOTAL PROPOSED EASEMENT AREA: 53.67 ACRES

PROPOSED EASEMENT AREA
PARCEL B

PROPOSED EASEMENT AREA
PARCEL A

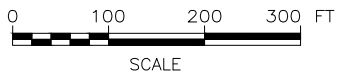
McFarland Johnson, Inc. 1000 State Street, Suite 200, Concord, NH 03301

LEGEND:

- | | |
|---|--|
| --- AIRPORT PROPERTY LINE | COASTAL FOREST COMMUNITY AREA |
| --- EXISTING EASEMENT LINE | WHITE PINE COMMUNITY AREA |
| - - - PROPOSED EASEMENT LINE | SCRUB OAK COMMUNITY AREA |
| --- RIGHT OF WAY LINE | MIXED SUCCESSIONAL FOREST COMMUNITY AREA |
| - - - PROPOSED TREE REMOVAL AREA | |
| --- PERPETUAL AIRSPACE EASEMENT (EXPIRED) | |

NOTES:

- EXISTING LIDAR SURFACE FROM NOAA - 2013-2014 NH, RI, MA DATA.
- TREE TOP ELEVATIONS ARE FROM 2019 TREE-TOP SURVEY.
- ROW 5 APPROACH PATH - A THRESHOLD SIGHTING SURFACE WITH A SLOPE OF 34:1 AS A RESULT OF RUNWAY 24 APPROACH HAVING A VISIBILITY MINIMUM LESS THAN $\frac{1}{2}$ STATUE MILE. THIS SURFACE IS NEEDED TO ENSURE THE AIRCRAFT CAN SEE THE THRESHOLD OR THE END OF THE RUNWAY ON APPROACH TO THE AIRPORT.



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

MARTHA'S VINEYARD AIRPORT
WEST TISBURY, MASSACHUSETTS

PROPOSED APPROACH SURFACE
EASEMENT



McFarland Johnson

53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

SCALE: 1" = 100'	DESIGN: DMP	5-5 1 OF 1
DRAWN: DMP	PROJECT: 18226.07	
CHECKED: RJL	DATE: MAY 2021	

Impacts to State-Listed Rare Species

The Natural Heritage and Endangered Species Program (NHESP) identified 30 State-listed rare species in the project area (Appendix F). Five are plants, all of which are found mainly in open grassland habitats, and one of which (lion's foot) can also be found in forest or shrub habitat. These species are expected to benefit from the increase in grassland and mowed shrub habitat. The species, their habitat needs²⁶²⁷ and potential impacts are discussed below.

Of the twenty rare Lepidoptera (moths or butterflies) species identified by NHESP, most are found in either scrub oak or blueberry/ericaceous shrub habitat. One, the Imperial moth, is found in pitch pine-oak barrens and woods. The Imperial moth could be adversely affected by the decrease in forested habitat, but most other species would see an increase in their preferred habitat.

One bee species, Walsh's Anthophora, is on the NHESP list. It is found in grasslands, utility rights-of-way, and fire breaks. This species would likely benefit from the increase in grassland and shrub habitats.

The one beetle species, the purple tiger beetle, is found in sandplain soils with sparse vegetative cover, often on dirt roads or paths. The Proposed Action would not increase or decrease the amount of such habitat, so no permanent adverse impact is expected.

The three bird species listed by NHESP are described below.

- The Eastern whip-poor-will nests in open woodlands and forages in open meadows and shrublands, and therefore could see a reduction in nesting habitat and an increase in foraging habitat. Because of the abundance of forested habitat, this change will probably not adversely affect this species.
- The grasshopper sparrow nests and forages in grasslands, a habitat which will increase in quantity at the Airport.
- The northern harrier nests and forages in grasslands and similar habitats and could benefit from the proposed Projects.

As design progresses, the Airport will continue seeking ways to avoid and minimize impacts to rare species. The Airport will continue to work with NHESP and the MA Department of Conservation and Recreation (DCR) to address rare species impacts.

Impacts to Federally Listed Rare Species

The northern long-eared bat is both federally and State-listed as a rare species and is found on the island of Martha's Vineyard; however, this species was not identified by NHESP in the Project area. The U.S. Fish and Wildlife Service, in response to an inquiry submitted on November 13, 2020, issued the following response (see Appendix F):

The U.S. Fish and Wildlife Service (Service) received on November 13, 2020 your effects determination for the 'MVY Capital Improvement Projects' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for

²⁶ GZA GeoEnvironmental, Inc. (2020). 2020 Interim Survey Report, Martha's Vineyard Airport (MVY).

²⁷ NHESP (2020). Walsh's Anthophora, *Anthophora walshi*. (Fact Sheet)

Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

It is concluded that no further action is necessary to comply with the U.S. Endangered Species Act.

5.9.2.2 Construction-Period Impacts

The Proposed Action would pave 3.4 acres of grass that is Priority Habitat while removing pavement from 7.2 acres, for a net reduction of 3.8 acres of impervious surfaces in Priority Habitat areas and a corresponding increase in grass. It is anticipated that 11.4 acres of existing state-protected species habitat would be temporarily impacted by regrading activities during construction. Where practical, state-listed plants will be removed from the work areas prior to grading and relocated to other areas of the Airport. Topsoil from disturbed areas may be stockpiled and reused after grading to promote re-seeding from the soil seedbank. Disturbed areas will be revegetated at the end of construction using a seed mix approved by the NHESP.

Vegetation will be managed (mostly tree removal and tree suppression) within approximately 32.0 acres of Priority Habitat that is currently a mixture of forest and shrub habitat. Specific means and methods have not been determined. However, measures that are likely to be implemented include:

- Tree removal will occur in winter to avoid construction activity during bird breeding seasons and insects' active seasons.
- Ways to minimize disturbance to the ground and existing desirable vegetation will be explored in consultation with NHESP and DCR. For example, where there is a single tree or a small clump of trees within a larger shrub area, the trees may be accessed on foot and cut with equipment carried by hand. These trees would not be skidded out or chipped but would be cut into pieces to maximize contact with the ground, so they are less likely to become fire hazards.

These measures will be addressed within a state-listed species protection plan, which is expected to be required during Massachusetts Endangered Species Act permitting. Consultation with the NHESP during permitting under the Massachusetts Endangered Species Act will ensure that unnecessary impacts to biological resources are avoided or minimized.

5.9.2.3 Indirect/Secondary Impacts

Indirect and secondary impacts to biological resources may occur due to construction activities. BMPs will be employed during and after construction to minimize the potential for indirect impacts to state-listed species, including winter tree removal; prevention of invasive plant species introduction; and minimization of erosion of destabilized soils. Stockpiles will be surrounded by a perimeter of erosion controls and covered when not in active use. No significant indirect impacts to species or habitats are expected from the proposed Projects.

5.9.2.4 Mitigation

For each of the proposed Projects that would impact Priority Habitat, a work zone and anticipated area of disturbance for grading has been estimated. Due to the prevalence of state-protected species habitat at the Airport, the proposed Projects will be planned and constructed using avoidance and minimization techniques. BMPs will be employed to further reduce impacts and will include:

- Delineation of work areas;
- Contractor training;
- Transplanting;
- Seed bank preservation;
- Follow-up monitoring and reporting;
- Winter tree removal; and
- Tree removal using hand-carried equipment where appropriate.

All impacts to state-protected species habitat will be mitigated in accordance with the requirements of the Massachusetts Endangered Species Act. A state Conservation and Management Permit will be required for the proposed Projects that will include specific mitigation and monitoring commitments to ensure that the species affected will be afforded a net benefit through minimization and mitigation techniques.

Each of the proposed Projects will be reviewed with the NHESP to further develop Project-specific minimization and mitigation measures. The proposed mitigation program for impacts to state-listed species has yet to be determined; however, consultation with the NHESP is ongoing. Mitigation may consist of habitat management measures, payment in lieu of formal mitigation to provide habitat enhancement or protection off-Airport, or other measures. These commitments will be conditioned as part of the required Massachusetts Endangered Species Act permitting process.

5.10 LAND USE AND THE BUILT ENVIRONMENT (MEPA/NEPA)

As required by the MEPA regulations under 301 CMR 11.07, this DEIR/EA assesses the potential impacts of the proposed Projects on the built environment, including zoning and relevant land use designations. There is no FAA significance threshold associated with this environmental resource category. For concerns related to land use compatibility and noise, see Section 5.7.

Airport development projects have the potential to cause land use impacts. The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of an airport's noise impacts. However, it can also be associated with disruptions of the surrounding community,

residential or business relocations, changes in vehicular traffic patterns, induced socioeconomic effects, and even off-airport effects from on-airport facilities such as lighting units.

In planning future airport developments, it is important to identify early in the planning process existing and planned land uses that could affect or be affected by the Airport improvements to avoid or minimize effects that would disrupt land use compatibility with the Airport. Chapter 4 identified and discussed existing and planned land uses in the vicinity of the Proposed Action. Sensitive land uses generally include residences, schools, religious institutions, parks and recreation areas, and other public places. Potential impacts to these sensitive receptors include noise generated by aircraft and ground traffic and safety hazards. Other potentially incompatible land uses near airports include facilities that generate high levels of electrical transmissions or bright lights, wildlife habitat that attracts birds and other animals with the potential to interfere with airport operations, and tall structures or other objects obstructing navigable airspace.

According to the *Airport and Airway Improvement Act* of 1982 (section 511(a) (5)), the EA shall include documentation that demonstrates that the Airport sponsor has, to the extent reasonable, taken the appropriate measures to place restrictions on the use of land, adjacent to or in the immediate vicinity of the Airport, to ensure that existing and planned land uses would remain compatible with normal airport operations, including the landings and takeoffs of aircraft.

5.10.1 No-Build Alternative

Under the No-Build Alternative, the existing Airport footprint would remain unchanged; therefore, no incompatible land uses would be introduced, and no surrounding land uses would be altered. Failure to maintain Airport infrastructure or to remove vegetation that is obstructing airspace could alter the aircraft types or numbers that can use the Airport or which runways can be used, which would adversely affect users of the Airport and needed Airport revenue.

5.10.2 Proposed Action

The Proposed Action would not affect the numbers of aircraft or their flight patterns at the Airport, and therefore would not affect noise conditions in surrounding areas. Tree removal will be visible along local roads and the shared-use path. However, the land uses on and off the Airport would not change and there would be no change in the compatibility of the Airport and surrounding land uses. Scenic and visual impacts are addressed further in Section 5.11.

The Projects include at least 3.2 acres of tree removal within the State Forest, outside of existing easements. (Appendix E includes the Airport's official property map, referred to as "Exhibit A".) If easements are required to remove trees from these areas, the easements would cover the full extent of potential future vegetation management, which is approximately 15.1 acres. Based on a preliminary assessment, if the large easement in the Runway 24 approach is determined to no longer exist, an additional 41.5 acres of easement would be needed, or 56.6 acres total. (See **Figure 5-5.**) The Airport would work closely with DCR to develop a vegetation and habitat management plan that is compatible with the management goals and uses of the State Forest.

The proposed right-turn lane on Airport Road will be visible but should improve traffic flows, so it will not have an adverse effect on surrounding land uses. None of the other projects are expected to be incompatible with, or to otherwise affect, surrounding land uses.

5.10.2.1 Indirect/Secondary Impacts

The Airport would work closely with DCR to ensure vegetation management on State Forest land is compatible with the management goals and uses of the State Forest. The Proposed Action will not introduce other land uses that would be incompatible with existing or proposed land uses in the Airport's surroundings. No significant Indirect and secondary impacts are expected.

5.10.2.2 Mitigation

The Airport will continue working with DCR to develop a vegetation and habitat management protocol that is compatible with the management goals and uses of the State Forest. The Airport will work with the towns and the Martha's Vineyard Joint Transportation Committee and its Bicycle and Pedestrian Advisory Committee to minimize temporary and permanent effects to the shared-use path.

5.11 SCENIC QUALITIES, OPEN SPACE AND RECREATIONAL RESOURCES (MEPA); VISUAL EFFECTS (NEPA)

As required by the MEPA regulations under 301 CMR 11.07, this DEIR/EA assesses the potential impacts of the proposed Projects on scenic qualities, open space, and recreational resources. Scenic qualities, open space, and recreational resources is not an environmental resource category listed in FAA Order 1050.1F, but the Order does require the assessment of visual effects (including light emissions). This involves visual resources and visual character that pertain to "the aesthetic value and any unique aspects of the area, including any protected visual resources."²⁸ There is no FAA significance threshold associated with this environmental resource category. Department of Transportation Act, Section 4(f) also pertains to recreational resources and visual effects (Section 5.12 below).

5.11.1 No-Build Alternative

Under the No-Build Alternative, the existing Airport footprint would remain unchanged; therefore, no change in scenic qualities, open space or recreational resources would occur.

5.11.2 Proposed Action

The Proposed Action involves 34.1 acres of vegetation management, some of which will be visible for a stretch of approximately 1,118 feet along Barnes Road and the associated shared-use path; and 1,292 feet along Edgartown-West Tisbury Road and the shared-use path. Currently, there is an approximately 10-foot wide strip of grass between the shared-use path and the Airport perimeter fence. Both sides of the perimeter fence are mowed for safety reasons, so the fence can be observed and inspected. This minimizes the chances that unauthorized people, or wildlife which may pose a hazard to aircraft, can enter the airfield. Users of the shared-use path have, and will continue to have, an unobstructed view of the fence and the airfield beyond. On the road side of the path, there are trees with a well-developed understory, providing a partial screen of views of the road for users of the path. The proposed tree removal would leave native shrubs in place, and with exposure to sun, the shrubs are likely to grow more densely. The dominant shrub in the area is scrub oak, which naturally grows into dense thickets and grows to heights of 12 to 20 feet tall²⁹. The shrubs will help provide shared-use path users with a screen from the road, and passing motorists with a screen from the airfield and associated Airport

²⁸ FAA Order 1050.1F. (2015)., *Environmental Impacts: Policies and Procedures*. July 16, 2015.

²⁹ Native Plant Trust database: <https://gobotany.nativeplanttrust.org/species/quercus/ilicifolia/>

infrastructure, such as runways, lighting, and navigational equipment. In tree removal areas, more grassland and shrubs and less forest land will be visible from the road. The 150-foot wide approach light plane in the Runway 24 approach requires vegetation to be cut to the ground periodically, so that segment will not have a screen between the path and road.

In the Runway 24 approach, there would be 19.9 acres of tree removal, with 16.7 acres on State Forest land, 2.2 acres on airport property outside of easements, 0.5 acres on airport property within the shared-use path easement, and 0.5 acres within the road right of way. Within the State Forest, 13.4 acres is within a 44-acre easement area (the status of which is uncertain) and 3.2 acres are outside of easements. (See Figure 5-5.) The 44-acre easement was acquired in 1958 specifically to keep regulated airspace free of trees and other obstructions. The reduction of forest along the sides of the existing approach light clearing would change the view for passing motorists or pedestrians, and would be noticeable from certain portions of State Forest. Consistent with the prior easements, the State Forest could still be used for recreational purposes but would not be available for use by large groups of people. Possible vegetation management within the tree removal areas is described below in Section 5.11.5.

There would be additional lighting for the Hangar Development, extended Taxiway E, and Aircraft Parking and Movement projects, although new lighting would mostly be toward the interior of airport property; would be consistent in character with existing lighting; and are not likely to noticeably alter views from off airport property.

5.11.3 Construction-Period Impacts

The vegetation management (primarily tree removal) within and near the State Forest could temporarily disrupt use of the State Forest. Tree removal would be conducted in winter, when there are fewer users of the State Forest. The Airport would work with DCR to develop a plan that minimizes impacts to users of the State Forest and does not disrupt access to the resource.

No other Projects are expected to affect local scenic or aesthetic qualities during the construction period. Any visual impacts from the presence of construction vehicles and equipment would be temporary.

5.11.4 Indirect/Secondary Impacts

Tree removal within the State Forest would affect the scenic qualities of the State Forest by reducing forest cover and increasing shrublands. There are already extensive shrub habitats in the area, so the change is not incompatible. Indirect effects of the work might involve minor management measures such as rerouting of trails or planting screens. However, the change in cover type is not expected to have significant indirect or secondary impacts or to otherwise limit the accessibility or diminish the use of proximate open space and recreational resources.

5.11.5 Mitigation Measures

The Airport will continue working with DCR to develop a vegetation and habitat management protocol that is compatible with the management goals and uses of the State Forest. The DCR has proposed the following vegetation management measures:

- *Pitch Pine/Oak Canopy: selective oak removal (retain larger diameter, well-formed oaks less than 20-feet tall unless predicted to penetrate airspace within the next 35 years), removal of all evergreens, preservation of understory with avoidance measures during tree removal.*
- *Coastal Forest/Dense Oak/White Pine with Blueberry/Huckleberry understory: removal of all evergreens, selective oak removal, preservation of understory with avoidance measures during tree removal.*
- *Tall white Pine Forest/Open Understory: removal of all evergreens, preservation of any understory that is present with avoidance measures during tree removal.*
- *Scrub oak: preservation of scrub oak present in all tree removal areas to the maximum extent possible. Prioritization of larger/multi stemmed clumps for protection.*
- *Removal of cut trees and majority of slash, and no chipping on site.*
- *Invasive species assessment prior to work activities, implementation of invasive species management and spread prevention techniques during the cut, and monitoring/reporting to DCR for inventory and monitoring on DCR easements.*

The Airport generally agrees with this approach and will continue working with DCR and NHESP to develop the plan. More investigation and dialogue will be needed in relation to certain aspects of the plan, such as:

- During final design of the vegetation management projects, more analysis will need to be done to determine whether any trees are less than 20 feet tall and would not penetrate airspace for at least 35 years, and the implications for future management.
- There will need to be discussions about tree removal means and methods, such as the feasibility of removing slash.
- There will need to be agreement on future, ongoing vegetation management strategies, such as how to prevent tree regrowth and how to encourage desirable vegetation growth; and whether to mow, brush-hog, selectively cut, or burn tree removal areas to maintain them.

The Airport will continue to work with DCR and NHESP on these issues and in developing the vegetation and habitat management plan.

Mitigation will also be required for the conversion of State Forest to managed vegetation and easement areas. The EOEEA has developed a Land Disposition Policy for such conversions. The Project's compliance with the Policy is addressed in detail in Section 7.11. A key component of the Policy is to provide as compensation "real estate of equal or greater fair market value or value in use of proposed use, whichever is greater, and significantly greater resource value as determined by EOEA and its agencies". The amount of land has not been determined, and that determination is complicated by the following factors:

- The status of the easement covering most of the tree removal area is uncertain.
- This easement area was originally granted to the county (for the Airport) but the easement was later invalidated, was reauthorized by the state legislature, and may or may not have been reestablished; nevertheless, the intent was to establish it for this purpose.
- The easement will leave the land as part of the State Forest, the land will be maintained as a relatively natural vegetation community, and it will continue to support the recreational activities it currently supports.

The Airport has done some preliminary research into possible mitigation parcels, focusing on parcels large enough to provide significant mitigation abutting, or in close proximity to, the State Forest. There are few parcels meeting these guidelines. There are two parcels in West Tisbury, 22 and 36 acres in size, that are near but not abutting the State Forest. One 90-acre parcel in West Tisbury abuts the State Forest but is partially developed. The Town of Edgartown owns extensive acreage east of the State Forest but not abutting it. The Airport has undeveloped land abutting the State Forest on the north and east sides of the Airport. Some of this land does not serve an aviation purpose and may be appropriate as mitigation for the proposed easements.

Discussions with DCR regarding appropriate mitigation and investigation of mitigation parcels will continue.

The Airport will work with the towns and the Martha's Vineyard Joint Transportation Committee and its Bicycle and Pedestrian Advisory Committee to minimize temporary and permanent effects to the shared-use path. Dense native shrubs will be left in place between the road and path to provide users of the path with a partial screen from the road.

5.12 SECTION 4(F) RESOURCES (NEPA)

Section 4(f) of the Department of Transportation Act of 1966 states that federal approval will not be given to projects requiring the use of any land from a public park, recreation area, wildlife/waterfowl refuge, or historic site unless there is no feasible or prudent alternative to the use of such land, and the project includes all possible planning to minimize harm resulting from the use. There are two types of use the FAA evaluates in regard to Section 4(f) resources: physical and constructive. Physical Use means the project would require physical taking of a Section 4(f) resource through acquisition or easement, occupation of a part or all of the property, or require alteration of facilities on the property. Constructive use of a Section 4(f) property occurs when the proximity impacts of a proposed action on an adjacent or nearby Section 4(f) property, after incorporation of impact mitigation, are so severe that the "activities, features, or attributes of a property are substantially impaired."³⁰

FAA Order 1050.1F identifies the significance threshold for actions involving a Section 4(f) resource. For the proposed Projects, the determination of significance was based on the potential for the involvement of "more than a minimal physical use of a Section 4(f) resource" or a use that "constitutes a 'constructive use' based on FAA determination that the aviation project would substantially impair the Section 4(f) resource."

As described in Chapter 4, the Section 4(f) resources in the project area include the Manuel F. Correllus State Forest and the shared-use path.

5.12.1 No-Build Alternative

Under the No-Build Alternative, the existing footprint at the Airport would remain unchanged; therefore, there would be no impacts to or uses of Section 4(f) resources.

³⁰ FHWA. (2019). "Section 4(f) Tutorial." Retrieved 1 July 1, 2020, from https://www.environment.fhwa.dot.gov/env_topics/4f_tutorial/overview.aspx?a=e#a.

5.12.2 Proposed Action

The Proposed Action includes vegetation management on State Forest land and along the public shared-use path. (See **Figures 5-1 through 5-4** and the official Airport property map, Appendix E.)

Approximately 13.5 acres of the vegetation management on State Forest land would be within easements acquired specifically to allow unobstructed aircraft travel. Assuming they still exists, vegetation management in these easements is not considered a use of the Section 4(f) resource.

At least 3.2 acres of trees within the State Forest outside of easements will need to be removed. It has not been determined whether additional easement area must be acquired to remove the trees and ensure future vegetation management can occur. If needed, the additional easement acreage would be approximately 15.1 acres. If the prior 44-acre easement is found to no longer exist, then a total easement area of approximately 56.6 acres would be needed. These existing and potential easement areas are shown on Figure 5-5. Because of both Section 4(f) and Article 97 of the Amendments to the State Constitution, the Airport and FAA will have to come to an agreement with DCR prior to removing trees or obtaining an easement. Since it is assumed there will be agreement on the proposed work, it is further assumed the work will not constitute either a physical or constructive use of the resource. The resource would still be impacted, but the impact would be considered *de minimis*, and no individual Section 4(f) evaluation would be needed. If an agreement is not reached with DCR, then it is unclear how the work could proceed given the requirements of both Section 4(f) and Article 97. Compliance with Article 97 and the *EOEA Article 97 Land Disposition Policy* is addressed in Section 7.11.

Trees will also be removed along the shared-use path where it passes through the Runway 6 and 24 approaches. In these two areas, the shared-use path runs along the inside edge of Airport property, along Barnes Road and Edgartown-West Tisbury Road. In both areas, the Airport side of the shared-use path is bordered by grass and the Airport fence, with an unobstructed view of the airfield. There is an approximately 20- to 30-foot-wide swath of trees and shrubs between the shared-use path and the public roads. Removing the trees will make the roads and vehicle traffic more visible and audible to users of the shared-use path. The length of shared-use path affected are 1,118 feet along Barnes Road and 1,292 feet along Edgartown-West Tisbury Road.

Within the vegetation management areas, the shared-use paths are within easements granted specifically for the shared-use path. Along Barnes Road and part of Edgartown-West Tisbury Road, the paths are within an easement granted by the County to the State in 1973. There are no provisions relating to vegetation management in the easement, but since they are within runway approaches, it is assumed that vegetation management to remove airspace obstructions is an acceptable activity. Further west along Edgartown-West Tisbury Road, but still within the Runway 6 approach, the shared-use path passes through State Forest land for which the County holds an easement which allows it to remove any obstructions that may interfere with aircraft. Because the shared-use path is entirely within easements that allow, or do not prohibit, necessary vegetation management, it is assumed the vegetation management would not be a physical or constructive use of the shared-use path resource. The visual effects of removing trees is considered a *de minimis* use.

5.12.3 Construction-Period Impacts

There would be a *de minimis* use of the shared-use path and the State Forest during the construction period. The vegetation management work could temporarily affect the ability to use the shared-use

path. Construction vehicle access could also affect shared-use path use. The Airport will work with the towns and the Martha's Vineyard Joint Transportation Committee and its Bicycle and Pedestrian Advisory Committee to develop temporary signage and lighting and, if necessary, alternate shared-use path routes to ensure the broader shared-use path network remains useable and safe. The vegetation management work could also temporarily affect use of the State Forest. The Airport will work with DCR in efforts to maintain trail continuity during construction.

5.12.4 Indirect/Secondary Impacts

The proposed Projects are not expected to result in or induce projects or other activities that would result in a use of a Section 4(f) resource. No indirect/secondary impacts are anticipated for U.S. Department of Transportation Act, Section 4(f).

5.12.5 Mitigation

Impacts will be minimized to the extent possible by issuing public notices of construction; providing alternate trail routes if needed; and minimizing vegetation removal where appropriate. For example, tall shrubs such as scrub oak will be left in place along the shared-use path and within portions of the State Forest as a visual buffer between the State Forest and the Airport and between the shared-use path and the local roads. As noted above, the Airport will work with the towns and the Martha's Vineyard Joint Transportation Committee and its Bicycle and Pedestrian Advisory Committee in this regard.

The Airport will continue to work with DCR to ensure appropriate mitigation for impacts to the State Forest is provided. Per the *EOEA Article 97 Land Disposition Policy*, "real estate of equal or greater fair market value or value in use of proposed use, whichever is greater, and significantly greater resource value" is required. See Section 7.11 for a description of how the project will address the Land Disposition Policy requirements.

5.13 SOCIOECONOMIC, ENVIRONMENTAL JUSTICE AND CHILDREN'S HEALTH AND SAFETY RISKS (NEPA)

As required by the MEPA regulations under 301 CMR 11.07, this DEIR/EA assesses the potential impacts of the proposed Projects on economic and social conditions. Further, in accordance with the 2017 *Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs*, along with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, this DEIR/EA reviews the proposed Projects against their potential to result in the equitable allocation of benefits and burdens, as applicable. FAA Order 1050.1F requires the consideration of potential impacts of the proposed Projects on social elements, including socioeconomics, environmental justice, and children's health and safety risks. The FAA has not established a significance threshold relative to this environmental resource category.

Because there are no low-income or minority populations in the Airport vicinity, there are no impacts to such populations. Within Martha's Vineyard, the population over the age of 64 is above the 80th percentile.

5.13.1 No-Build Alternative

Under the No-Build Alternatives, the Airport would not significantly alter infrastructure or the nature of operations within the Project areas, and existing and projected levels of passenger and aircraft

operations at the Airport would not be affected. There would be no Project-related human health or environmental effects; therefore, there would not be any disproportionately high and adverse effects to children's health and safety risks.

The No-Build could result in negative socioeconomic impacts by limiting the ability of the Airport to operate safely and efficiently. In addition, the No-Build does not support jobs creation within the community, including direct and induced jobs associated with the construction phase.

5.13.2 Proposed Action

No significant changes are expected between pre-development and post-development socioeconomic conditions. The Proposed Action is located mostly on Airport property and is not anticipated to negatively affect landowners, and therefore would not produce a substantial change in the community tax base.

The Proposed Action would not disrupt or divide the physical arrangement of an established community and would not cause relocation of individuals or community business. Therefore, it can be concluded that disproportionately high and adverse human health or environmental effects are not anticipated to occur among any populations as a result of the Proposed Action.

No changes are expected between pre-development and post-development conditions regarding health and safety risks, other than the potential increased safety of air travel relative to the No-Build.

The proposed alternatives have been evaluated for their potential to have a disproportionate effect on children's environmental health or safety, including, but not limited to, water quality, air quality, and noise. The proposed Projects will not create or make more readily available products or substances that contact or ingestion through air, food, drinking water, recreational waters, or soil could harm children. It has been concluded that the Proposed Action is not of the nature or magnitude to have an adverse effect upon the health and safety of children. Mitigation is not proposed.

5.14 HAZARDOUS MATERIALS AND SOLID WASTE (MEPA/NEPA)

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention in FAA Order 1050.1F. The FAA has identified factors to consider in evaluating the context and intensity of potential impacts. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors to determine if there are significant impacts. Factors to consider include, but are not limited to, situations in which the Proposed Action or alternative(s) would have the potential to:

- Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management.
- Involve a contaminated site (including, but not limited to, a site listed on the National Priorities List).
- Produce an appreciably different quantity or type of hazardous waste.
- Generate an appreciably different quantity or type of solid waste, use a different method of collection or disposal, and/or exceed local capacity.

- Adversely affect human health and the environment.

5.14.1 No-Build

The No-Build Alternatives would not result in any new construction, and therefore, there would be no new solid waste generation, disturbance of soil/groundwater or need for disposal of hazardous materials. Active Massachusetts Contingency Plan (MCP) disposal sites would continue to be assessed and remediated in order to achieve regulatory closure under the No-Build Alternatives.

5.14.2 Proposed Action

Solid waste is likely to be produced during the construction phase of the Proposed Action (see below). The amount of solid waste to be generated by the Proposed Action during the operational phase is not expected to be a significant increase over the current levels produced by current Airport operations. Solid waste would be produced by the businesses occupying Lots 34 and 38 of the Business Park and the new hangars. The renovated terminal would have more interior space but would not affect the numbers of passengers, airline staff, Airport employees and others that use the facility, so there should not be a substantial increase in waste generated.

Management and disposal of construction and vegetative debris will be in accordance with federal, state, and local regulations. As applicable, debris from demolition activities would be transported to an authorized facility with recycling capability with the potential to be used in future projects by others. Also, clean excavated soils may be reutilized on-site to the maximum extent possible and in accordance with site-specific design specifications. Excess soils could also be reutilized off-site, if warranted. Vegetative debris would be managed by chipping/grinding for use in landscape as mulch and compost, and excess disposed in accordance with applicable regulation.

Implementation and operation of the Proposed Action would comply with all applicable federal, state, and local regulations regarding hazardous materials, hazardous waste management, solid waste, and pollution prevention. The amount of solid waste to be generated by the Proposed Action during the operational phase is not expected to be a significant increase over the current levels produced by current Airport operations.

5.14.3 Construction-Period Impacts

Based on the presence of an active MCP site at the Airport, there is the potential to encounter contaminated soil and/or groundwater during the construction phases of the proposed Projects. Such an encounter would require special handling and management.

As described in Section 5.6.2, all of the projects requiring earthwork will have more excavation than embankment (fill). Excess soil generated as part of the construction of the proposed Projects will be reused or retained on-site to the extent practicable. Soils that are excavated from areas proximate to known or suspected AFFF releases will be segregated and placed upon and covered by polyethylene sheeting (or equivalent) pending the results of sampling and laboratory analysis. Soils will be tested for contaminants in accordance with state guidelines. Incidental releases of PFAS contaminated soil will be prevented by stormwater management and dust control practices, as described in sections 6.5.1 and 6.5.2, respectively.

Three projects (Business Park Lots 34 and 38, Fuel Farm Access and Safety Improvements, and Aircraft Hangar Development) are scheduled to begin prior to the completion of the MCP Comprehensive Site

Assessment. Due to the projects' proximity to known PFAS release areas and the unknown extent of PFAS contamination, these activities will employ a Release Abatement and Mitigation (RAM) plan under the supervision of the environmental Licensed Site Professional (LSP) who oversees the MCP activities. The RAM plan will include pre-characterization soil sampling prior to construction. This will allow for better assessment of PFAS impacts and planning for any required disposal of impacted soil. During construction, the segregation and testing of soils from areas potentially impacted by PFAS will be performed under the RAM plan prior to embankment, onsite reuse/disposal, or offsite use/disposal. RAM plans will be considered for projects scheduled after completion of the Comprehensive Site Assessment using the assessment's findings.

Should new contamination be discovered during construction, it will be assessed, and if necessary, remediated prior to and during construction activities per the MCP. Contaminated groundwater would be treated prior to being discharged or would be stored in frac tanks (i.e., large capacity steel tanks) for off-site disposal at an appropriate facility to be treated. Groundwater treatment generates waste, such as spent carbon filter media, that would require proper disposal at a licensed receiving facility. If contaminated soil and/or groundwater require off-site disposal, they will be sent to a licensed disposal facility such as a landfill and stored to prevent future impacts to human health and the environment via appropriate containment.

Based on the age of the buildings, asbestos containing building materials (ACBMs) may be present. An ACBM survey and sampling will be conducted prior to any demolition activities. If asbestos is detected in the samples then the building materials will be properly abated by a licensed contractor in accordance with all applicable state (310 CMR 7.15) and federal regulations prior to demolition activities. Pursuant to 29 CFR 1910.1001 (OSHA asbestos regulations) and 29 CFR 1926.1101 (OSHA construction-specific asbestos regulations), the requisite PPE, monitoring, and other hazard mitigation procedures will be implemented to protect contractors, airport workers, and the public. Specifically:

- PPE would primarily be a respirator of some kind (negative pressure or powered air) with high efficiency particulate air (HEPA) filters, protective clothing, and goggles if the respirator is not full face.
- Exposure monitoring would include taking breathing zone air samples representative of 8-hour time-weighted average and short term, 30-minute exposure samples. Frequency is determined by the class of asbestos work.
- Other hazard mitigation techniques would include negative pressure enclosures (NPE), ventilation, and wetting.

Therefore, no adverse construction impacts are anticipated associated with the management of hazardous building materials.

5.14.4 Indirect/Secondary Impacts

Excess soil and groundwater generated during the construction phases of the proposed Projects will be properly managed in accordance with the Massachusetts Contingency Plan. The risk of improper off-site management of soil and groundwater is low given the existing regulations in place. Therefore, no adverse indirect/secondary impacts are anticipated during construction activities associated with the management of potentially impacted environmental media.

Solid waste such as construction and demolition debris will be recycled as appropriate and sent off-site to an appropriate receiving facility. The risk of improper disposal of these materials is low given that these materials will be tracked by the contractors. Therefore, no adverse indirect/secondary impacts are anticipated.

No use of oil and/or hazardous materials above existing conditions are anticipated at any of the proposed Projects. Accordingly, no adverse indirect/secondary impacts associated with the increased use of oil and/or hazardous materials is expected. The proposed hangars would provide a controlled environment to better protect on-Airport maintenance equipment and vehicles; no maintenance activities would be conducted within this facility.

5.15 CUMULATIVE IMPACTS

In determining the significance of the impacts associated with the Proposed Action, it is necessary to consider the overall cumulative impact of the Proposed Action in combination with other projects. The Council on Environmental Quality regulations at 40 CFR 1508.7 defines cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions”.

The geographic area of concern for this analysis is generally the Airport property, areas affected by vegetation obstruction removal, and the immediate surroundings. For the most part, this means the Airport, adjacent State Forest land, and a mixture of developed and undeveloped land immediately south of the Airport. The time period for cumulative effects analysis is the recent past and the future period during which the project is expected to affect a resource, ecosystem, or human community, roughly the past 10 to 15 years, and into the future only to the extent there are known development plans.

5.15.1 Past Projects

Recently completed projects at the Airport have included reconstruction of Taxiway A beginning in 2006 and completed in 2012, construction of the southeast ramp phase 1 completed in 2006, reconstruction of the Southwest Ramp from 2010 to 2012, obstruction removal within the approach to Runway 6 completed in 2006, conversion of derelict pavement near the southeast ramp area to grassland in 2009, creation of the buckmoth mitigation area and pathways completed in 2006, shifting of Runway 6/24 in 2010, rehabilitation of Runway 6-24 in 2018-2019, vegetation management for Taxiway E completed in 2009, and relocation of the localizer in 2014. Also during this time period, the Business Park continued to fill previously subdivided and approved lots.

5.15.2 Ongoing and Reasonably Foreseeable Projects

Aside from signage, pavement markings, and equipment purchases, there are no infrastructure projects currently under construction at the Airport. No substantial changes are proposed in the State Forest at this time, although there are ongoing discussions regarding fire lane management, trail development, and other management issues. The Airport is working with nearby residents affected by PFAS contamination regarding filtration systems, but no new infrastructure has been proposed. As of November 2020, the Airport Manager is not aware of any other large developments in the vicinity and town offices had not provided additional information.

5.15.3 Cumulative Effects of Proposed Action

The potential cumulative impacts of each component of the Proposed Action are described below.

Lots 34 and 38

Both lots were cleared and as a result impacted Priority Habitat, incrementally reducing the amount of such habitat available in the area. The Business Park was established over 20 years ago, with most lots developed between 1998 and 2001, followed by incremental building since that time. This area has long been targeted for commercial development and has received local permits and approvals for this use. However, portions of it have been designated Priority Habitat, and construction on Lots 34 and 38 have reduced that habitat. Sufficient mitigation will be provided such that it will not contribute to significant cumulative impacts. Furthermore, the consumption of water, electricity, and heating fuel, along with the production of wastewater, have been planned for and will not exceed the capacities of existing utilities.

Aircraft Hangar Development

The hangars will disturb Priority Habitat and create new impervious surfaces. Stormwater management practices will treat runoff and minimize contribution to water quality impacts. The Proposed Action overall will result in a reduction in impervious area and an increase in grass within Priority Habitat, and improvements in stormwater management. The buildings will increase wastewater production, and increase consumption of utilities such as water, electricity, and heating fuel. However, this consumption does not exceed the capabilities of existing utilities and is therefore not anticipated to result in cumulative impacts for those resources. No adverse cumulative impacts are expected from the proposed Aircraft Hangar Development.

Improve Fuel Farm Access and Safety

The proposed fuel farm will result in no change in footprint, no change in net impervious surfaces, and no change in use, therefore the fuel farm project is not anticipated to contribute to cumulative effects.

Airspace Vegetation Management – Runway 6

The proposed vegetation management on the Runway 6 end is located partly on airport property and partly on State Forest property within an easement that allows for vegetation removal. The proposed work involves the removal of trees within approximately 2.2 acres south of Edgartown-West Tisbury Road and 1.6 acres of trees north of the road. These areas will be converted to shrub habitat which supports a variety of rare moth and butterfly species, so the vegetation management will not contribute to adverse cumulative impacts.

Airspace Vegetation Management – Runway 24

The proposed obstruction removal on the Runway 24 end is located partially on Airport property, partially within an easement on State Forest property granted for the protection of aviation use and allowing for obstruction removal, and partially on State Forest property with no easement. While cutting the easement areas will reduce the amount of forest cover, it will improve habitat for certain rare species, and will be consistent with the intended use of the easement. Removing trees from State Forest will reduce the amount of forest land but will have other benefits, and this habitat type is still abundant

on the island and on Cape Cod. Therefore, this work will not contribute to significant cumulative impacts.

Displace Runway 15 Threshold 275 Feet, Construct Partial Parallel Taxiway E and Remove Vegetation

This project proposes a substantial net reduction in paved surfaces and an increase in grassland. In combination with new stormwater treatment measures, this project will reduce stormwater runoff, improve stormwater treatment, and increase the amount of grassland habitat. The vegetation management at the Runway 15 and 33 ends will reduce the amount of forested habitat but will increase both grassland and shrub habitat. Grassland and shrub habitat both support a variety of rare plant and animal species. For these reasons, these project components will not contribute to adverse cumulative impacts.

Terminal Building Renovation

The Terminal Building Renovation will consume more water and energy than the current building. These are not in short supply and the building will employ a variety of water- and energy-saving fixtures and components. For these reasons, these project components will not contribute to adverse cumulative impacts.

Access Road Improvements

The proposed new right-turn lane will marginally improve traffic flow, thereby reducing vehicle fuel usage and emissions. It will have a relatively small footprint in non-Priority Habitat. For these reasons, this project will not contribute to adverse cumulative impacts.

Improve Aircraft Parking and Movement Areas

This project will improve the efficiency of aircraft ground movements and will not add net new impervious surfaces. It will also employ stormwater management of existing and proposed pavement, an improvement over existing treatment. For these reasons, this project will not contribute to adverse cumulative impacts.

6 MITIGATION AND DRAFT SECTION 61 FINDINGS

6.1 INTRODUCTION

The Martha's Vineyard Airport Five-Year Capital Improvement Plan Projects (the Projects) would provide needed infrastructure improvements to enhance the efficiency and safety of aircraft ground movements and general operations at the Martha's Vineyard Airport (the Airport). They would also utilize development potential within non-aeronautical parcels under Airport ownership to support Airport operations and increase Airport revenues. The proposed Projects are not expected to affect aircraft flight patterns or changes the sizes or types of aircraft that can use the Airport.

The Airport has designed and developed the proposed Projects to avoid and minimize impacts to environmental resources. To this end, the proposed Projects incorporate Best Management Practices (BMPs) for stormwater management and habitat protection, as well as Project enhancements associated with resource efficiency and resiliency planning. The proposed Projects will result in a reduction in overall impervious surfaces within the Airport boundary which, combined with the proposed stormwater treatment, would reduce stormwater runoff volumes and improve runoff water quality. They are also expected to result in unavoidable conversions of state-protected species habitat.

According to the Secretary of the Executive Office of Energy and Environmental Affairs' (EOEEA) Certificate on the Environmental Notification Form (ENF) for the proposed Projects, the Draft Environmental Impact Report (DEIR) is required to document the following:

The DEIR should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each permit to be issued by State Agencies. The DEIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation. The DEIR should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing, either tying mitigation commitments to overall project square footage/phase or environmental impact thresholds, to ensure that adequate measures are in place to mitigate impacts associated with each development phase.

Chapter 5, *Environmental Consequences* of this DEIR/Environmental Assessment (EA) identifies and discusses the Airport's planned beneficial measures and mitigation commitments for the proposed Projects. This chapter presents a summary of those measures and commitments with a focus on those requiring State Agency action consistent with the Secretary's Certificate and in accordance with M.G.L. c. 30, section 61.

6.2 MEPA HISTORY

The Airport filed the ENF for the proposed Projects on December 14, 2018. The ENF (EEA #16128) was noticed in the Environmental Monitor on December 26, 2018, and was available for public comment through February 12, 2019. MEPA held a public scoping meeting on January 31, 2019 at the Airport's Snow Removal Equipment Building, where it presented an overview of the proposed Projects and solicited public input. The Secretary published the Certificate on the ENF on February 22, 2019, and determined that the proposed Projects require the preparation of a DEIR. The Certificate included the scope of the DEIR.

6.3 REQUIRED STATE PERMITS AND REVIEWS

Table 6-1 summarizes the State Agency actions required to construct the proposed Projects, along with their current status. Chapter 7, *Regulatory Compliance* of this DEIR/EA provides a detailed discussion of these permits and reviews.

Table 6-1 Anticipated State Permits and Approvals for the Martha's Vineyard Airport Five-Year Capital Improvement Plan

Issuing Agency	Approval or Permit	Status
Executive Office of Energy and Environmental Affairs	Secretary's Certificate under the Massachusetts Environmental Policy Act (MEPA)	Draft Environmental Impact Report (DEIR) submitted herein. A Final EIR (FEIR) will be noticed following the close of the comment period and issuance of the Secretary's Certificate on the DEIR.
Department of Environmental Protection (MassDEP) Underground Injection Control (UIC) Program	UIC Class V Technical Compliance Form for Stormwater Wells	Determined during 30 percent design
Natural Heritage and Endangered Species Program (NHESP)	Conservation and Management Permit	Permit to be issued after the Secretary's Certificate on the FEIR
MassDEP	Massachusetts Contingency Plan	As required. Hazardous materials encountered during the development would be addressed in accordance with applicable Massachusetts Contingency Plan regulations.
MassDEP and Department of Labor Standards (DLS)	BWP AQ 04 Asbestos Removal Notification form	The Airport will submit a BWP AQ 04 Asbestos Removal Notification form to MassDEP if it is determined to be applicable.
MassDEP	BWP AQ 06 Notification Prior to Construction or Demolition form	As required prior to each construction project.
Massachusetts Department of Transportation	State Highway Access Permit	Required for changes to Airport Road intersection with Edgartown-West Tisbury Road
Department of Conservation and Recreation	Construction Access Permit	Expected to be required for vegetation management on State Forest outside of airport easements.
Massachusetts State Senate and House of Representatives	Article 97 of Amendments to Massachusetts Constitution	Applicability (for vegetation management or easements in State Forest) to be determined in consultation with Department of Conservation and Recreation. Requires two-thirds vote of state legislature.

6.4 DRAFT SECTION 61 FINDINGS

The following provides a draft Section 61 Finding that is intended to address the potential impacts of the proposed Projects. This draft can be used by State Agencies with permitting responsibilities (**Table 6-1**).

*Project Name: Martha's Vineyard Airport Five-Year Capital Improvement Plan
Project Location: Towns of West Tisbury and Edgartown, Massachusetts
Project Proponent: Martha's Vineyard Airport Commission
EEA Number: 15964*

This Section 61 Finding for the Martha's Vineyard Airport Five-Year Capital Improvement Plan (the proposed Projects) (EEA #15964) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the proposed Projects have been characterized and quantified in the Draft Environmental Impact Report (DEIR), which is incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the Martha's Vineyard Airport (the Airport) has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the proposed Projects. The Airport has worked throughout the planning and environmental review process to develop measures to mitigate unavoidable impacts to the extent practicable. With the implementation of the proposed mitigation, conducted in cooperation with State Agencies, the [Agency Name] finds that there are no significant unmitigated impacts.

The Airport recognizes that the identification of effective mitigation, and implementation of that mitigation, throughout the life of the proposed Projects, is central to its responsibilities under MEPA. Accordingly, the Airport has prepared Section 6.5 of the DEIR that specifies, for each potential state permit, the beneficial measures and mitigation commitments that the Airport would provide. In Section 6.5, the Airport provides clear commitments to implement the mitigation measures; estimates the costs of each proposed measure, where available; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon the phasing of the proposed Projects.

The [Agency Name] has reviewed the MEPA filings for the proposed Projects, and finds that the environmental impacts resulting from Project construction are those impacts described in the DEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, the [Agency] finds that with the implementation of mitigation measures as identified in Section 6.5 of the DEIR, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the proposed Projects. In making this finding, the [Agency] has considered reasonably foreseeable climate change impacts and effects such as predicted sea level rise.

6.5 BENEFICIAL MEASURES AND MITIGATION COMMITMENTS

Table 6-2 provides a high-level summary of the beneficial measures and mitigation commitments that the Airport pledges to implement as part of the proposed Projects. Those pertaining to State Agency action are discussed in detail in Sections 6.5.1 through 6.5.7 below. All measures are expected to be implemented by the Airport or its contractors according to the schedule of construction for the proposed Projects. Their costs are expected to be covered by the total Project costs estimated in Chapter 5, *Alternatives Analysis and Proposed Action*, though specific costs for stormwater BMPs are included in **Table 6-3** and proposed/potential energy efficiency measures at the proposed Construct Nobadeer Farm Crew Quarters and Construct Ground Service Equipment Building Projects are included in Appendix D, *Energy Model Documentation*.

Table 6-2 Summary of Beneficial Measures and Mitigation Commitments

Section	Resource Category ¹	Beneficial Measure/Mitigation Commitments
6.5.1	Water Resources (MEPA/NEPA)	<ul style="list-style-type: none"> • Permanent Best Management Practices (BMPs) including vegetated filter strips, water quality dry swales, new deep-sump and hooded catch basins, and subsurface infiltration structures • Implementation of an erosion and sedimentation control program for each construction project • Updating the Airport's Spill Prevention, Control, and Countermeasure Plan (SPCC)
6.5.2	Air Quality (MEPA/NEPA)	<ul style="list-style-type: none"> • Mitigating fugitive dust emissions by wetting and stabilizing exposed soils, cleaning paved roadways, and scheduling construction to minimize the amount and duration of exposed earth • Requiring compliance with the requirements of MassDEP's Clean Construction Equipment Initiative, which includes measures such as: <ul style="list-style-type: none"> ○ Requiring that contractors utilize ultra-low sulfur diesel fuel for off-road construction vehicles and/or equipment ○ Requiring that contractors install emission control devices on applicable equipment types • Requiring that gasoline and diesel motorized construction equipment be well maintained and in good running order to minimize exhaust emissions, including odor • Requiring record-keeping of the routine maintenance programs for internal combustion engine-powered vehicles and equipment • Where feasible, using alternative-fueled or electric equipment • Requiring construction equipment to meet the USEPA's Tier 4 Emissions Standards (40 CFR part 1039), which specify that emissions of particulate matter (PM) and nitrous oxides (NOx) be further reduced, where feasible • Requiring that contractors enforce Massachusetts' Anti-Idling law (310 CMR 7.11), which requires that engines idle for no more than five minutes, with the installation of on-site anti-idling signage at loading and waiting areas • Encouraging contractors to prepare transportation management plans or other development programs/incentives that aim to reduce worker

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Section	Resource Category ¹	Beneficial Measure/Mitigation Commitments
		travel by single-occupancy vehicle to the Airport (e.g., the provision of off-Airport parking and shuttle services)
6.5.3	Climate and Greenhouse Gas Emissions (MEPA/NEPA)	<ul style="list-style-type: none"> At the proposed Terminal Building Renovation and Aircraft Hangar Development Projects: <ul style="list-style-type: none"> Designing new buildings with solar-ready rooftops to the extent required by the building code in effect at the time of construction and considering installation of solar panels Installing higher performance heat pumps Replacing HVAC with a variable refrigerant flow system Installing an energy recovery ventilator as part of the variable refrigerant flow system Improving lighting efficiency Install daylighting controls in certain areas Increasing wall and roof insulations Improving curtain wall glass performance, decreasing size of curtain wall, and improving curtain wall glazing Considering Passive House improvements to hangars Examining the potential for solar photovoltaic systems at other Airport infrastructure, such as the Airport Rescue and Fire Fighting building and parking lots. Considering the Massachusetts Department of Energy Resources' recommended energy conservation measures in future versions of the Airport's Capital Improvement Plan Requiring compliance with the requirements of the MassDEP's Clean Construction Equipment Initiative Requiring that gasoline and diesel motorized construction equipment be well maintained and in good running order Requiring record-keeping of the routine maintenance programs for internal combustion engine-powered vehicles and equipment Where feasible, using alternative-fueled or electric equipment Requiring that contractors enforce Massachusetts' Anti-Idling law (310 CMR 7.11), which requires that engines idle for no more than five minutes, with the installation of on-site anti-idling signage at loading and waiting areas Encouraging contractors to prepare transportation management plans or other development programs/incentives that aim to reduce worker travel by single-occupancy vehicle to the Airport (e.g., the provision of off-Airport parking and shuttle services)
6.5.4	Natural Resources and Energy Supply (MEPA/NEPA)	<ul style="list-style-type: none"> Energy efficiency measures discussed above under Section 6.5.3, <i>Climate and Greenhouse Gas Emissions</i> Installing LED technology into all new or replaced airfield lighting and signage, where appropriate Incorporating low flow/flush into the proposed new buildings Managing waste according to applicable federal, state, and local laws and regulations

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Section	Resource Category ¹	Beneficial Measure/Mitigation Commitments
6.5.5	Biological Resources (MEPA/NEPA)	<ul style="list-style-type: none"> Avoidance and minimization measures will include delineation of work areas, contractor training, and where appropriate, bulk and manual transplanting, seed bank preservation, and follow-up monitoring Mitigation measures may include habitat enhancement or in lieu fee and will be developed in conjunction with the NHESP through the permitting process
6.5.6	Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (MEPA/NEPA)	<ul style="list-style-type: none"> Drawing from the local workforce to the extent practicable Coordinating with the towns and local groups to ensure continued safe usage of the shared-use path and other recreational facilities during project construction
6.5.7	Hazardous Materials, Solid Waste, and Pollution Prevention (MEPA/NEPA)	<ul style="list-style-type: none"> Notifying MassDEP if a reporting condition is identified per the Massachusetts Contingency Plan (i.e., the identification of contaminants above the Reportable Concentrations that have not otherwise been reported, a release of OHM above a reportable quantity, etc.) Managing soils and groundwater in accordance with the applicable state and federal regulations including appropriate regulatory submittals such as a Release Abatement Measure Plan for work conducted within the limits of the active disposal site boundary associated with RTN 4-0027571 Sampling potential asbestos containing building materials (ACBMs) and abating all asbestos according to all applicable state (310 CMR 7.15) and federal regulations prior to demolition activities. Submitting a BWP AQ 06 Notification Prior to Construction or Demolition form to MassDEP if it is determined to be applicable. Implementing spill response programs in the event of a spill or leak associated with vehicles, aircraft operations, or heavy machinery, and contacting the appropriate regulatory agency Updating the Airport's existing Spill Prevention, Control and Countermeasure Plan within the next fiscal year to reflect any major changes to on-site petroleum product or liquid hazardous waste storage Performing special handling, dust control, and management of contaminated soil and groundwater to provide adequate protection to workers and any nearby sensitive receptors Coordination with MassDEP on managing soils with PFAS contamination, if any. A permanent identification number would be obtained in accordance with 310 CMR 30.000 if a proposed Project generates hazardous waste and/or waste/oil

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Section	Resource Category ¹	Beneficial Measure/Mitigation Commitments
	Topography, Geology, and Soils (MEPA/NEPA) ²	The proposed Projects would not require State Agency action with respect to topography, geology, and soils. As discussed in Chapter 5, <i>Environmental Consequences</i> , the proposed Projects have no potential for an adverse impact on this environmental resource category. Therefore, no beneficial or mitigation measures are proposed.
--	Tidelands and Coastal Resources (MEPA/NEPA)	The proposed Projects would not require State Agency action with respect to tidelands and coastal resources. As analyzed in Chapter 5, <i>Environmental Consequences</i> , the proposed Projects are not expected to result in an adverse impact on this environmental resource category. Therefore, no beneficial or mitigation measures are proposed.
--	Noise and Noise-Compatible Land Use (MEPA/NEPA)	The proposed Projects would not require State Agency action with respect to noise and noise-compatible land use. Noise is not anticipated to exceed FAA thresholds for noise abatement, nor is it expected to require a State Agency permit or approval.
--	Surface Transportation (MEPA) ³	The airport access road improvements (adding a right-turn lane) would require a State Highway Access Permit from the Massachusetts Department of Transportation. As discussed in Chapter 5, <i>Environmental Consequences</i> , the Airport will coordinate with the Towns of West Tisbury and Edgartown on permanent and construction-period signage and lighting, as necessary, to promote the safe use of the Shared-use Path. It will also encourage contractors to prepare transportation management plans or other development programs/incentives that aim to reduce worker travel by single-occupancy vehicle to the Airport (e.g., the provision of off-Airport parking and shuttle services). During final design of proposed Airport Road and terminal projects, ways to safely accommodate all roadway users, including pedestrians and bicyclists, will be considered.
--	Scenic Qualities, Open Space and Recreational Resources (MEPA) and Visual Effects (Including Light Emissions) (NEPA)	The proposed Projects would not require State Agency action with respect to scenic qualities, open space and recreational resources, and visual effects. As discussed in Chapter 5, <i>Environmental Consequences</i> , the Airport will coordinate with the Towns of West Tisbury and Edgartown on permanent and construction-period signage and lighting, as necessary, to promote the safe use of the shared-use path. The Airport will also limit uncontrolled light emissions by shielding exterior light fixtures to the extent practicable.
--	Historical, Architectural, Archaeological, and Cultural Resources (MEPA/NEPA)	The proposed Projects would not require State Agency action with respect to historical, architectural, archaeological, and cultural resources. As discussed in Chapter 7, <i>Environmental Consequences</i> , the proposed Projects have no potential for an adverse impact on this environmental resource category. Therefore, no beneficial or mitigation measures are proposed.
--	Department of Transportation Act, Section 4(f) (NEPA)	The proposed Projects would not require State Agency action with respect to Department of Transportation Act, Section 4(f). As discussed in Chapter 5, <i>Environmental Consequences</i> , the Airport will coordinate with the Towns of

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Section	Resource Category ¹	Beneficial Measure/Mitigation Commitments
		<p>West Tisbury and Edgartown on permanent and construction-period signage and lighting, as necessary, to promote the safe use of the shared-use path.</p> <p>The Airport will coordinate with the Department of Conservation and Recreation regarding vegetation management timing and methods to minimize disruption of users of the State Forest.</p>
--	Land Use and the Built Environment (MEPA/NEPA)	The proposed Projects would not require State Agency action with respect to land use and the built environment.

Notes:

- 1 Environmental resource categories as specified in MEPA regulations under 301 CMR 11.07 and FAA Order 1050.1F and Order 5050.4B.
- 2 This resource category includes the NEPA category of "Farmlands."
- 3 Surface Transportation is typically addressed under socioeconomic considerations under FAA Order 1050.1F. For this DEIR/EA, this resource category is addressed in a separate section.

6.5.1 Beneficial Measures and Mitigation Commitments – Water Resources

Specific stormwater BMPs were evaluated to improve water quality of stormwater runoff and to minimize potential impacts of on downstream wetlands, surface waters, and groundwater. Stormwater BMPs that will be employed to control runoff, address peak rate attenuation, provide groundwater recharge, and improve water quality for the proposed Projects include:

- Vegetated filter strips;
- Water quality dry swales;
- New deep-sump and hooded catch basins;
- Subsurface infiltration structures.

The Airport selected these BMPs due to consideration of soil texture, groundwater, land area, topography, existing utilities, aesthetics, Airport operating considerations, setback and permitting requirements, and maintenance. The new stormwater management systems will protect the sole-source aquifer and will meet or exceed the requirements of the USEPA's National Pollutant Discharge Elimination System General Permit and the MassDEP's Stormwater Management Standards.

Additionally, an erosion and sedimentation control program will be implemented to minimize temporary impacts to resource areas during the construction phases of the proposed Projects. This program incorporates BMPs specified in guidelines developed by the USEPA and MassDEP.

Proper implementation and maintenance of the erosion and sedimentation control program would:

- Minimize exposed soil areas through sequencing and temporary stabilization;
- Place structures to manage construction stormwater runoff and erosion; and
- Establish a permanent vegetative cover or other forms of stabilization as soon as practicable.

Controls would comply with criteria contained in the National Pollutant Discharge Elimination System General Permit for Discharges from Large and Small Construction Activities issued by the USEPA.

Non-structural practices that may be used during construction include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping, and dust control. These practices would be initiated as soon as practicable in appropriate portions of the work zones. Any areas of exposed soil or stockpiles that would remain inactive for more than 14 days would be covered with a layer of straw mulch.

Table 6-3 lists the estimated costs for the abovementioned stormwater BMPs at each of the proposed Projects.

Table 6-3 Estimated Costs of Infiltration Best Management Practices

Project	Proposed Measure	Estimated Cost of Drainage Improvements
Business Park Lots 34 and 38	Existing system	None (ties into existing system)
Aircraft Hangar Development	Subsurface stormwater management system	Unknown; responsibility of tenant
Improve Fuel Farm Access and Safety	Deep sump hooded catch basin and oil grit separator	\$15,000
Airspace Vegetation Management	None	None
Runway 15-33 and Taxiway E Reconstruction	Deep sump hooded catch basin and subsurface infiltration structure	\$330,000
Terminal Building Renovation	None	None
Access Road Improvements – Right-Turn Lane	Water quality dry swale, deep sump hooded catch basin and subsurface infiltration structures	\$27,200
Aircraft Parking and Movement Areas – New Stub Taxiway on Southeast Ramp and Reconfigure Southwest Ramp	Subsurface stormwater management systems	\$260,000

Source: McFarland Johnson, 2020

Prior to any ground disturbance, an approved erosion control barrier would be installed at the downgradient limit of work. As construction progresses, additional barriers would be installed around the base of stockpiles and other erosion prone areas. As appropriate, the barriers would be entrenched into the substrate to prevent underflow.

If sediment has accumulated to a depth which impairs proper functioning of the barrier, it would be removed by hand or by machinery operating upslope of the barriers. This material would be either reused within the Project areas or disposed of at a suitable offsite location. Any damaged sections of the barrier would be repaired or replaced immediately upon discovery.

6.5.2 Beneficial Measures and Mitigation Commitments – Air Quality

The operations of the proposed Projects would not cause significant adverse direct and indirect impacts as they would not cause, or contribute to, a violation of the National Ambient Air Quality Standards. As such, no mitigation measures are proposed related to operations.

The Airport is committed to ensuring that short-term construction-related air quality impacts from the proposed Projects are minimized to the extent practicable. With the implementation of the following measures during the construction periods, no significant adverse impacts are expected.

Demolition activities will comply with Air Pollution Control regulations pursuant to M.G.L. Chapter 40, Section 54, as well as current Massachusetts Air Pollution Control regulations governing nuisance conditions at 310 CMR 7.01, 7.05, 7.09 and 7.11. Fugitive dust emissions are proportional to the amount of earth moved and the length of travel on unpaved roads. Any impacts from fugitive dust particles would be of short duration and localized. Mitigating fugitive dust emissions involves curbing or eliminating its generation. Mitigation measures that will be used in site construction include wetting and stabilization to suppress dust generation, cleaning paved roadways, and scheduling construction to minimize the amount and duration of exposed earth.

The Airport will require contractors to utilize ultra-low sulfur diesel fuel for off-road construction vehicles and/or equipment. Construction contracts will require that gasoline and diesel motorized construction equipment be well maintained and in good running order during the work effort on the proposed Projects. All equipment and vehicles will be properly maintained and repaired to minimize exhaust emissions, including odors. Records of the routine maintenance programs for internal combustion engine-powered vehicles and equipment used for the proposed Project will be established and maintained. The proposed Projects will use alternative-fueled or electric equipment where feasible.

The construction of the proposed Projects will comply with the requirements of MassDEP's Clean Construction Equipment Initiative aimed at reducing air emissions from diesel-powered construction equipment. The Airport requires that contractors install emission control devices, such as diesel oxidation catalysts and/or diesel particulate filters on certain equipment types (front-end loaders, backhoes, excavators, cranes, and air compressors). Equipment will meet the USEPA's Tier 4 Emissions Standards (40 CFR part 1039), which require that emissions of particulate matter (PM) and nitrous oxides (NOx) be further reduced, where feasible. Idle reduction and dust and odor control would also be addressed. The contractors will enforce Massachusetts' Anti-Idling law (310 CMR 7.11) which requires that engines idle for no more than five minutes, with the installation of on-site anti-idling signage at loading and waiting areas. Additionally, the Airport will encourage its contractors to prepare transportation management plans or other development programs or incentives that aim to reduce worker travel by single-occupancy vehicle to the Airport. Such programs may include the provision of off-Airport parking and shuttle services.

6.5.3 Beneficial Measures and Mitigation Commitments – Climate and Greenhouse Gas Emissions

As discussed in Chapter 7, *Environmental Consequences*, greenhouse gas (GHG) impacts associated with the operation of the proposed Projects have been considered in terms of stationary and mobile sources. The means by which the Airport intends to reduce such emissions are described below.

6.5.3.1 Stationary Source Emissions

In response to the Secretary's Certificate on the ENF filing, the Airport analyzed stationary source emissions at the proposed Terminal Building Renovation and Aircraft Hangar Development Projects. These analyses were based on energy modeling using the conceptual plans for the buildings and greenhouse gas conversion factors prescribed by the MEPA Greenhouse Gas Policy.³¹

The design options for the proposed Terminal Building Renovation Project provide multiple alternatives with substantial energy savings. These energy conservation measures could individually result in a 9 percent reduction of energy consumption and greenhouse gas emissions for the proposed Terminal Building Renovation Project compared to the Base Case. A combination of these improvements could achieve a 16 percent reduction. These and other measures will be re-assessed when this proposed Project enters the design stages in the coming years.

For the proposed Aircraft Hangar Development Project, the Airport proposes to mitigate greenhouse gas emissions by some combination of heat pumps, lighting, VRF, and Passive House construction designs. Energy savings of these measures range from 17 to 65 percent compared to the Base Case. Combinations of these measures applied to the terminal and both hangars could yield greenhouse gas reductions of 12 to 24 percent.

Stationary Source Emissions - On-Site Renewables

The Airport plans on constructing the Terminal Building Renovation with a solar-ready rooftop and will examine the potential for solar photovoltaic systems to be implemented on both this and the Aircraft Hangar project when the Projects have transitioned from concept to detailed design. At this stage, the terminal building design has been oriented to maximize south-facing rooftop area for a photovoltaic array. At a minimum, these buildings will have solar-ready rooftops to the extent required by the building code in effect at the time of construction. Solar-ready zones will be free from obstructions such as vents and chimneys and will be designed to support the structural loads associated with a solar photovoltaic system. The ability of the hangars to accommodate photovoltaic systems will be determined during final design. These buildings must face the aircraft apron, and this in turn affects building orientation.

Stationary Source Emissions - Potential Energy Conservation Measures for Existing Buildings

While no modifications are currently proposed to existing Airport buildings, future versions of the Capital Improvement Plan may incorporate these types of projects. The Airport will include the Massachusetts Department of Energy Resources' recommendation to consider the following energy conservation measures for such project types in future capital improvement plans:

- High-performance building envelopes;
- Electrification of space and water heating using heat pump technology;
- Heat recovery systems;
- Passive House building design; and
- Rooftop and/or ground-mounted solar photovoltaic systems.

³¹ A conversion factor of 682 lbs. per MWh was used for electricity (2017 ISO New England Air Emissions Report), while a value of 12.7 lbs. per gal was used for propane (U.S. Energy Information Administration).

6.5.3.2 Mobile Source Emissions

The proposed Projects would not have a substantial impact on mobile source greenhouse gas emissions. Accordingly, the Airport does not propose any mitigation measures. However, the Airport generally aims to reduce single occupancy vehicle trips by promoting the services of the Martha's Vineyard Transit Authority's bus service (by providing information and links on the Airport's website), and utilizing taxi and livery services that are also available to access the Airport.

Temporary mobile source greenhouse gas emissions associated with construction will be mitigated to the extent feasible. Construction contracts will require that gasoline and diesel motorized construction equipment be well maintained and in good running order during the work effort on the proposed Projects. Records of the routine maintenance programs for internal combustion engine-powered vehicles and equipment used for the proposed Project will be established and maintained. The proposed Projects will use alternative-fueled or electric equipment where feasible.

The construction of the proposed Projects will comply with the requirements of MassDEP's Clean Construction Equipment Initiative aimed at reducing air emissions from diesel-powered construction equipment. The contractors will enforce Massachusetts' Anti-Idling law (310 CMR 7.11) which requires that engines idle for no more than five minutes, with the installation of on-site anti-idling signage at loading and waiting areas. Additionally, the Airport will encourage its contractors to prepare transportation management plans or other development programs or incentives that aim to reduce worker travel by single-occupancy vehicle to the Airport. Such programs may include the provision of off-Airport parking and shuttle services.

6.5.3.3 Land Alteration Emissions

Trees will be removed from approximately 32 acres of land within runway approaches and safety areas. To minimize the lost carbon sequestration benefits of these areas (and maximize their ecological value), many of these areas will retain existing shrub vegetation. Most other vegetation management areas will be mowed infrequently, annually or less often, which will allow plants to sequester carbon from the atmosphere.

6.5.3.4 Climate Resiliency

The Airport will consider the risk of wildfire associated with proposed vegetation management, reviewing the upcoming Wildfire Protection Plan and coordinating with appropriate DCR staff.

During final design of each project, additional analysis will be done to ensure BMPs control runoff, address peak rate attenuation, provide groundwater recharge, and improve water quality within the design life (typically 20 years) of each project, considering current and future climate conditions.

6.5.4 Beneficial Measures and Mitigation Commitments – Natural Resources and Energy Supply

No adverse impacts to natural resources and energy supply are anticipated as a result of the proposed Projects. Accordingly, the Airport does not propose any mitigation measures beyond the energy efficiency measures discussed above in Section 6.5.3, *Beneficial Measures and Mitigation Commitments – Climate and Greenhouse Gas Emissions*, as well as the beneficial measures of installing LED technology into all new or replaced airfield lighting and signage, where appropriate, and incorporating low flow/flush into the proposed building projects. The Airport will manage waste according to applicable federal, state, and local laws and regulations.

6.5.5 Beneficial Measures and Mitigation Commitments – Biological Resources

Due to the prevalence of state-protected habitat at the Airport, the proposed Projects will be planned and constructed using avoidance and minimization techniques. These will be employed to further reduce impacts and will include:

- Delineation of work areas;
- Contractor training;
- Manual and bulk transplanting;
- Seed bank preservation; and
- Follow-up monitoring and reporting.

All impacts to state-protected species habitat will be mitigated in accordance with the requirements of the Massachusetts Endangered Species Act. A state Conservation and Management Permit will be required for the proposed Projects that will include specific mitigation and monitoring commitments to ensure that the species affected will be afforded an overall net benefit.

Each of the proposed Projects will be reviewed with the NHESP to further develop Project-specific minimization and mitigation measures. The proposed mitigation program for impacts to state-listed species has yet to be determined; however, consultation with the NHESP is ongoing and it is expected that mitigation may consist of payment in lieu of formal mitigation to provide habitat enhancement or protection off-Airport, or other measures. These commitments will be conditioned as part of the required Massachusetts Endangered Species Act permitting process.

The proposed vegetation management within the State Forest, within and outside of existing easements, will be coordinated with the Department of Conservation and Recreation. Tree removal outside of easements will require a DCR permit and may require approval under Article 97 of the Amendments to the Massachusetts Constitution. Preliminary discussions with DCR staff indicate the vegetation management area can be managed in a way that is consistent with the Airport's requirements and the interests and purposes of the State Forest. Specifically, a habitat that is more consistent with the native natural communities in this area, that supports state-listed rare species, and that maintains the vegetation heights required for clear aircraft operation may be achievable. The Airport will continue to work with DCR, NHESP, FAA and MassDOT on this effort.

6.5.6 Beneficial Measures and Mitigation Commitments – Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

No adverse impacts to socioeconomics, environmental justice, and children's environmental health and safety risks are anticipated as a result of the proposed Projects. Accordingly, the Airport does not propose any mitigation measures beyond the beneficial enhancements of drawing from the local workforce to the extent practicable.

6.5.7 Beneficial Measures and Mitigation Commitments – Hazardous Materials, Solid Waste, and Pollution Prevention

Notification to the MassDEP will be required if a reporting condition is identified per the Massachusetts Contingency Plan, such as when oil and/or hazardous material is detected in soil and/or groundwater above the applicable standards. Any soil encountered during construction with oil and/or hazardous material above the Massachusetts Contingency Plan Reportable Concentrations would be managed

appropriately in accordance with the applicable state and federal regulations. The Airport will continue to coordinate with MassDEP on handling of soils that may be contaminated with PFAS.

Should impacted soil be generated during Project-related excavation that requires export or on-site reuse, this material would be properly characterized and managed in accordance with applicable regulations. Proper management would ensure appropriate reuse within the Project areas to prevent exposure to contaminants or, if the soil cannot be reused, export to appropriate destinations. If oil and/or hazardous material impacted groundwater is encountered during Project construction, it would also be managed in accordance with applicable regulations. If the volume of groundwater effluent is limited and subsequent off-site disposal is deemed the most cost-effective disposal option, the groundwater can be temporarily stored in fractionation tanks and hauled off-site to a treatment facility. For managing larger volumes of groundwater, it may be more cost effective to obtain a USEPA Remediation General Permit for discharge to surface waters/storm drains or a permit from the local sewer authority, if allowed, for discharge to sanitary sewers. Contaminated soil and groundwater handling and management during construction will be conducted in accordance with the appropriate submittals (i.e., Release Abatement Measures and/or Immediate Response Actions), including permits and permissions as appropriate. Based on the presence of an active disposal site associated with the Airport, any intrusive construction activities within this disposal site boundary must be conducted under a Release Abatement Measure Plan in accordance with 310 CMR 40.0440.

At the completion of response actions for disposal sites for which the Airport is listed as the Responsible Party, but regulatory closure has not yet been achieved, response actions would continue with the intent of achieving a Permanent Solution. The Airport would also work with the other Responsible Parties who oversee response actions at disposal sites within the Project areas in order to ensure that work is conducted in a coordinated fashion. Furthermore, per the Massachusetts Contingency Plan, construction activities associated with the proposed Projects would not prevent or impede the implementation of response actions within active disposal sites.

Spills and leaks associated with vehicles, aircraft operations, and heavy machinery can be appropriately mitigated through the implementation of spill response programs that specify procedures for emergency response in the event a spill or leak occurs. Depending on the nature of the spill or discharge to the environment, it may also be necessary to contact regulatory agencies. The agency to be contacted will depend on the nature and amount of the spilled material and the location of the spill. The Airport's existing Spill Prevention, Control and Countermeasure Plan will be updated within the next fiscal year in order to reflect any major changes to on-site petroleum product or liquid hazardous waste storage.

Mitigation measures during construction will include special handling, dust control, and management of contaminated soil and groundwater in order to prevent construction delays and to provide adequate protection to workers and any nearby sensitive receptors. All response actions must ensure that any nearby or adjacent receptors are adequately protected. In the event that a proposed Project generates hazardous waste and/or waste oil, a permanent identification number would be obtained in accordance with 310 CMR 30.000.

6.6 MEPA GREENHOUSE GAS EMISSIONS SELF-CERTIFICATION

In accordance with the MEPA GHG Policy, the Airport will provide a self-certification to the MEPA Office signed by an appropriate professional following completion of construction of each proposed Project indicating that all of the greenhouse gas mitigation measures, or equivalent measures that are designed to collectively achieve identified reductions in stationary source greenhouse gas emission and transportation-related measures, have been incorporated into the project. These measures are discussed above under Section 6.5.3.

7 REGULATORY COMPLIANCE

This section discusses the state and federal permits that the Martha's Vineyard Airport (the Airport) anticipates for the Five-year Capital Improvement Plan Projects (the Projects).

7.1 SUMMARY OF REGULATORY COMPLIANCE

The anticipated permits and approvals needed for the proposed Projects and the status of these approvals are listed in **Table 7-1**.

Table 7-1 Anticipated Permits and Approvals for the Martha's Vineyard Airport Five-Year Capital Improvement Plan

Issuing Agency	Approval or Permit	Status
Executive Office of Energy and Environmental Affairs	Secretary's Certificate under the Massachusetts Environmental Policy Act (MEPA)	Draft Environmental Impact Report (DEIR) submitted herein. A Final EIR (FEIR) will be noticed following the close of the comment period and issuance of the Secretary's Certificate on the DEIR.
Federal Aviation Administration (FAA)	Finding of No Significant Impact (FONSI) under the National Environmental Policy Act (NEPA)	Environmental Assessment (EA) submitted herein, FONSI anticipated at the conclusion of the NEPA process
FAA	Airport Layout Plan Approval	Approval to be issued after the FONSI
FAA	40 CFR Part 77, Form 7460-1 Construction or Alteration Requiring Notice	As required prior to construction
USEPA Region 1	National Pollutant Discharge Elimination System, Construction General Permit	A Notice of Intent and a construction-related stormwater pollution prevention plan will be developed by the contractors prior to construction of each project
DEP Underground Injection Control Program	UIC Class V Technical Compliance Form for Stormwater Wells	Determined during 30% design
Natural Heritage and Endangered Species Program	Conservation and Management Permit	Application to be submitted after the Secretary's Certificate on the FEIR
Massachusetts Department of Environmental Protection (MassDEP)	Massachusetts Contingency Plan	As required. Hazardous materials encountered during the development would be addressed in accordance with applicable Massachusetts Contingency Plan regulations.
MassDEP and Department of Labor Standards (DLS)	BWP AQ 04 Asbestos Removal Notification form	The Airport will submit a BWP AQ 04 Asbestos Removal Notification form to MassDEP if it is determined to be applicable.

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Issuing Agency	Approval or Permit	Status
MassDEP	BWP AQ 06 Notification Prior to Construction or Demolition form	The Airport will submit a BWP AQ 06 Notification Prior to Construction or Demolition form to MassDEP if it is determined to be applicable.
Commonwealth of Massachusetts	Article 97 of Amendments to Massachusetts Constitution	Applicability to be determined as design progresses.
Massachusetts Department of Conservation and Recreation	Construction Access Permit	Applicability to be determined as design progresses.
Massachusetts Department of Transportation	State Highway Access Permit	Required for changes to Airport Road intersection with Edgartown-West Tisbury Road
Martha's Vineyard Commission	Development of Regional Impact Permit	Applicability to be determined as design progresses; likely to be required for hangar development.

It should be noted that the proposed Projects are in Dukes County, which is designated as in Attainment for all National Ambient Air Quality Standards established by the USEPA except 8-hour ozone. Accordingly, it is not necessary to demonstrate conformity with the Massachusetts State Implementation Plan for improving air quality.

7.2 MASSACHUSETTS ENVIRONMENTAL POLICY ACT

The proposed Projects will exceed MEPA review thresholds under 301 CMR 11.03(6)(b)(6), as they will directly alter more than 25 acres of land and will disturb more than 2 acres of designated Priority Habitat. The Airport filed an Environmental Notification Form (ENF) for the proposed Projects, noticed in the MEPA Environmental Monitor on December 26, 2018, and received the Certificate on the ENF from the Secretary of the Executive Office of Energy and Environmental Affairs on February 22, 2019. The Certificate on the ENF required the Airport to prepare a Draft Environmental Impact Statement (DEIR). Since the ENF was submitted and the MEPA Certificate issued, the Airport became aware of vegetation obstructing airspace that should be kept clear of obstructions. A subsequent obstruction analysis confirmed that there are existing or potential vegetation obstructions (mostly trees) within all four runway approaches. The Airport is now proposing to remove these obstructions. In accordance with MEPA regulations at 301 CMR 11.10(1), this new project component requires that a Notice of Project Change (NPS) be submitted with the Draft EIR/EA. This document constitutes the combined NPS and DEIR.

The Airport has prepared this NPS/DEIR to comply with the specific requirements of the Certificate on the ENF and MEPA more broadly. The Secretary will solicit comments on this document, and based on its review, issue a certificate on the NPS/DEIR that verifies the adequacy of the document. Following issuance of the Secretary's Certificate on the DEIR, the Airport will prepare a Final EIR (FEIR) per the Secretary's direction. This NPS/DEIR is combined with a federal Environmental Assessment (EA) for review by the Federal Aviation Administration (FAA) under NEPA.

7.3 NATIONAL ENVIRONMENTAL POLICY ACT

The FAA has determined that the proposed Projects require an EA under NEPA. The Airport has prepared this Draft EA that identifies alternatives to the Projects, where applicable, and documents the potential environmental effects associated with their construction and operation. None of the Projects are expected to result in significant adverse environmental impacts.

7.4 AIRPORT LAYOUT PLAN APPROVAL

The Airport prepared this Draft EA in part because it is seeking FAA approval to modify its Airport Layout Plan through the proposed Projects. In accordance with FAA Order 5050.4B, FAA's approval of the Airport Layout Plan requires NEPA review.³² FAA's approval of the Airport Layout Plan will incorporate the proposed Projects described herein.

7.5 FAA PART 77 NOTIFICATION

In administering Title 14 of the Code of Federal Regulations (CFR) Part 77, the prime objectives of the FAA are to promote air safety and the efficient use of the navigable airspace. To accomplish this, proposed construction or alterations meeting the requirements in 14 CFR Part 77, Section 77.9 must be submitted to the FAA for evaluation. (This includes construction or alterations on any airport listed in the Airport/Facility Directory or any construction or alteration that exceeds the height of an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point on the nearest runway.) Specifically, FAA Form 7460-1, Notice of Proposed Construction or Alteration, must be completed and filed with the FAA if proposed work meets the requirements. For the CIP Projects, FAA Form 7460-1 will likely be needed for most construction activities and for new structures within the airport property line or exceeding the imaginary surface height described above. The Airport will submit FAA Form 7460-1 or its electronic equivalent (<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>), as needed, prior to construction of the Projects.

7.6 USEPA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

As the proposed Projects would result in disturbance of over 1 acre, they will require completion and submittal of a Stormwater Notice of Intent to the USEPA for coverage under the NPDES Construction General Permit for stormwater discharge from construction activities. The General Permit requires the development and implementation of project-specific Stormwater Pollution Prevention Plans that include specific sedimentation and erosion control measures that will be implemented for the entire duration of construction activities. Proper implementation of the Stormwater Pollution Prevention Plans will ensure that no adverse impacts would occur from construction-related runoff.

NPDES also regulates discharges of stormwater runoff from industrial sites, including airports, to Waters of the U.S. Discharges are regulated through the Multi-Sector General Permit program. Because the Airport does not have any stormwater discharges to Waters of the U.S., it is not subject to this permit program. However, the Airport voluntarily follows stormwater pollution prevention best practices and in

32 FAA. 2006. Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

2012 prepared a Draft Stormwater Pollution Prevention Plan for use in Airport operations and maintenance.

7.7 MASSACHUSETTS UNDERGROUND INJECTION PROGRAM

As project designs advance, details of the stormwater system will be reviewed to determine whether an underground injection permit from DEP will be required for any proposed underground systems that may be used to infiltrate stormwater below ground.

7.8 MASSACHUSETTS ENDANGERED SPECIES ACT

Due to the anticipated temporary and permanent impacts to Priority Habitat and possible rare species takings, the proposed Projects will require a Conservation and Management Permit from MassWildlife's Natural Heritage and Endangered Species Program to satisfy requirements of the Massachusetts Endangered Species Act. The Conservation and Management Permit requires documentation of avoidance and minimization measures during design, development of minimization measures during construction, and mitigation measures that will result in an overall net benefit to the species of concern.

7.9 MASSACHUSETTS CONTINGENCY PLAN

During construction, any encountered soil and groundwater contamination issues will be addressed, as needed, in compliance with the Massachusetts Contingency Plan. A Soil Management Plan may be required to determine whether any excavated soils that are generated can be reused onsite, and/or determine requirements for off-site reuse, recycling, or disposal. A Soil Management Plan, if needed, would be developed under the supervision of a Massachusetts Licensed Site Professional. The Soil Management Plan would be developed in concert with a Groundwater Management Plan, which will address requirements for dewatering and collection, testing and/or treatment, and disposal or discharge of water pumped from excavations, if required.

7.10 MASSDEP NOTIFICATION PRIOR TO CONSTRUCTION OR DEMOLITION AND ASBESTOS REMOVAL NOTIFICATION

In accordance with the Air Quality Regulations at 310 CMR 7.09(2), project proponents must submit a BWP AQ 06 Notification Prior to Construction or Demolition form to MassDEP for any construction or demolition of an industrial, commercial or institutional building, or residential building with 20 or more dwelling units, at least ten working days prior to initiation of the construction or demolition project. This is expected to apply to the hangar buildings to be demolished on the Southwest Ramp. The Proponent should propose measures to prevent or alleviate dust, noise, and odor nuisance conditions, which may occur during the demolition. In addition, an AQ 04 (ANF-001) Asbestos Removal Notification form must be submitted to the MassDEP and the Department of Labor Standards (DLS) if any asbestos abatement will be required, at least ten (10) working days prior to initiation of the abatement activities.

7.11 ARTICLE 97

Article 97 of the Amendments to the Massachusetts Constitution (Article 97) states in part:

The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose... Lands and easements taken or acquired for such purposes shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote, taken by yeas and nays, of each branch of the general court.

The Executive Office of Environmental Affairs (now the EOEEA) issued its *EOEA Article 97 Land Disposition Policy* (Article 97 Policy) on February 19, 1998. The Article 97 Policy defines land disposition as “a) any transfer or conveyance of ownership or other interests; b) any change in physical or legal control; and c) any change in use, in and to Article 97 land or interests in Article 97 land owned or held by the Commonwealth or its political subdivisions, whether by deed, easement, lease or any other instrument effectuating such transfer, conveyance or change.” Conservations with MA Department of Conservation and Recreation (DCR) staff (S. Provenchur and others, pers. com.) indicate that permanent vegetation management within the State Forest constitutes a change in use and requires an easement, and that these would be subject to Article 97.

EOEEA and its agencies do not support an Article 97 land disposition unless EOEEA and its agencies determine that certain exceptional circumstances exist. The circumstances and this project’s compliance with them are described below.

- I. All other options to avoid the Article 97 disposition have been explored and no feasible and substantially equivalent alternatives exist (monetary considerations notwithstanding).

An alternatives analysis for all of the proposed CIP projects was completed, as described in Chapter 3. The obstruction removal is the minimum required to meet FAA safety standards while maintaining the current level of aircraft operations. Without the obstruction removal, FAA could require the Airport to shorten the runway, limit the size and type of aircraft allowed on the runway, eliminate the use of the runway during inclement weather, or implement other modifications. While the No-Build Alternative has no associated development, the flying public and emergency/disaster response would be adversely impacted should the FAA require implementation of these modifications. There could also be adverse economic impacts due to the potential loss of aviation traffic and the economic benefits that are generated by the Airport.

- II. The disposition of the subject parcel and its proposed use do not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation), as determined by EOEA and its agencies

Tree removal within the State Forest would take place in a variety of habitats. Some of the tree cutting would occur within successional white pine forest, which is not native to the island, and would allow more native vegetation communities to thrive. Most of the area would be maintained as shrub and heath habitat and could benefit rare species that utilize these habitats. A portion of the tree clearing would take place in coastal forest and woodlands, adversely affecting habitat which is native to the island. This would also be replaced by native shrub and heath vegetation communities. Overall, the changes replace would both native and non-native vegetation communities with other native

communities and would not “destroy or threaten” the resource. It would also allow for continued recreational use of the resource in the manner it has traditionally been used.

- III. As part of the disposition, real estate of equal or greater fair market value or value in use of proposed use, whichever is greater, and significantly greater resource value as determined by EOEA and its agencies, are granted to the disposing agency or its designee, so that the mission and legal mandate of EOEA and its agencies and the constitutional rights of the citizens of Massachusetts are protected and enhanced;

The airport is committed to working with DCR to provide mitigation of equal or greater resource value, considering the nature of the resource and the impacts. The nature of the mitigation has not been determined but will support the mission and legal mandate of EOEEA and its agencies and the constitutional rights of the citizens of Massachusetts.

- IV. The minimum acreage necessary for the proposed use is proposed for disposition and, to the maximum extent possible, the resources of the parcel proposed for disposition continue to be protected;

The intent of the easement is to allow the Airport, at such time as it becomes necessary, to remove only those trees that obstruct the minimum amount of airspace needed to support current aircraft operations.. The resources of the easement area will not be destroyed and the area will still be accessible to the general public for the uses the land currently supports.

- V. The disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies and mandates of EOEA and its appropriate department or division; and

The proposed easement within the State Forest would still allow for recreational activity, with the exception of large groups, while serving the additional public purpose of aviation safety.

- VI. The disposition of a parcel is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests therein to the Commonwealth.

The State Forest is the result of various landowner donations and in part from eminent domain. Therefore, it would be difficult to discern the various wishes of those who donated, sold, or gave land for the State Forest. The State Forest was established to protect the heath hen, which has since gone extinct.

The Article 97 process requires a formal request with proper documentation (justification, title, survey, appraisal, etc.), agreement between the Airport and the DCR, coordination with EOEEA, approval of the EOEEA Secretary, along with a two-thirds vote of the legislature.

The Airport has been working with DCR staff since spring 2020 and the applicability of Article 97 has not yet been determined. Based on coordination to date, the Airport believes it can come to an agreement with DCR and meet Article 97 requirements.

7.12 DEPARTMENT OF CONSERVATION AND RECREATION

The DCR issues short-term and long-term Construction Access Permits for a variety of activities at parks, beaches, state forests, and reservations. These may cover temporary or permanent impacts. The application process requires engineering plans and application forms. The vegetation management on the State Forest outside of easement areas is expected to require a permit. The Airport will be working closely with DCR throughout project planning, design, permitting, and potentially the Article 97 process. The Airport expects to come to an agreement with DCR on the proposed work and expects it will be able to obtain the necessary permit.

7.13 MA DEPARTMENT OF TRANSPORTATION

MassDOT requires Vehicle Access Permits under M.G.L. Chapter 81, Section 21 and 720 CMR 13.00 for “Physical modifications to existing residential or commercial driveways or streets at their intersection with” state highways. Permit applications require engineering plans with grading and drainage. The District Highway Director determines whether and what category of permit is needed, reviews applications, and issues or denies the State Highway Permit.

7.14 DEVELOPMENT OF REGIONAL IMPACT

The Martha's Vineyard Commission (MVC) Act (Chapter 831 of the Acts of 1977, as amended) authorizes the Commission to review developments that exceed certain thresholds and could affect more than one town. Such projects are labeled Developments of Regional Impact (DRIs). Once officially classified as a DRI, the project must be approved by the MVC before a town board may issue a required permit or take any action. The Commission weighs the potential benefits and detriments of the proposal to determine whether the application should be approved, approved with conditions, or denied.

The Hangar Development project is likely to exceed the threshold for a DRI and require approval. Because the hangars are consistent with existing Airport land uses, does not expand the Airport's overall capacity, and is consistent with local and regional land use planning, approval is expected.

8 PUBLIC AND AGENCY COORDINATION

Both MEPA and NEPA require opportunities for public and agency input into the EIR/EA and documentation of the coordination efforts. This section identifies the Airport's ongoing efforts to coordinate with local, state, and federal agencies, as well as the public.

MEPA regulations (301 CMR 11.00) include specific requirements for filing environmental reports and ensuring inclusive public involvement. This includes at least one voluntary public informational meeting to be held prior to or during MEPA review of this DEIR/EA and a 30-day comment period beginning with its notice of availability in the Environmental Monitor.³³ The Airport is committed to ensuring that no person is excluded from these activities.

The Environmental Notification Form was formally noticed in the December 26, 2018 Environmental Monitor, and was distributed to local, state, and federal agencies. Its availability and the public meeting notice were announced in two local newspapers (Martha's Vineyard Times and Vineyard Gazette). A public meeting was held on January 31, 2019 to allow opportunities for the public to review plans and ask questions. Comments submitted on the Environmental Notification Form are included with the MEPA Certificate in Appendix A.

To ensure the public has been provided the information necessary to evaluate the proposed Project's potential impacts, this DEIR/EA will be made available during and after the 30-day public comment period at the Airport (71 Airport Road, Vineyard Haven), the Edgartown Town Library (26 West Tisbury Road, Edgartown), and West Tisbury Library (1042 State Road, Vineyard Haven). An accessible electronic version of the draft will be made available on the Airport's website (www.mvyairport.com). The Airport will also promptly send a copy of this DEIR/EA via postal mail to anyone requesting it during the comment period, free of charge.

Under NEPA, in accordance with FAA Order 1050.1F³⁴ and Council on Environmental Quality guidelines³⁵, project proponents are required to seek information from the public and other stakeholders regarding environmental concerns surrounding a proposed action, disclose potential environmental impacts resulting from a proposed action, and solicit comments on these findings. Specific requirements for ensuring proper public input include direct coordination with resource agencies, industry groups, and the affected community.

The Airport sought agency and public comment on the proposed Projects through the Airport Master Plan process and early design stages of the proposed Projects, including a public meeting on December 6, 2012.

The Airport has met the requirements for the filing of the ENF and the Notice of Project Change and Draft EIR/EAR. The principal public, resource/regulatory agency, and tribal coordination activities are listed in **Table 8-1** below. Formal correspondence and meeting minutes are included in Appendix F.

33 The MEPA Environmental Monitor can be found at <http://eeasonline.eea.state.ma.us/eea/emepa/emonitor.aspx>.

34 FAA Order 1050.1F. (2015)., *Environmental Impacts: Policies and Procedures*. July 16, 2015.

35 Council on Environmental Quality. (1978). *Regulations for Implementing the National Environmental Policy Act*, 40 CFR 1500. http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm

Table 8-1 Coordination with the public and resource or regulatory agencies

Organization	Dates	Topics
NHESP	6/13/2017	Proposed projects, a land planning study, and potential surplus mitigation
MEPA	8/7/2017	Overall list of projects, MEPA/NEPA thresholds, and the required documentation the project would need
MEPA	2/9/2018	Proposed projects in detail and documentation timing and process
NHESP	8/14/2018	Rare species issues associated with the upcoming Capital Improvement Plan projects and the Business Park lots 34 and 38
Martha's Vineyard Times and Vineyard Gazette	12/20/2018 and 12/21/2018	A Public Notice of Environmental Review was published in each paper advertising the ENF submittal and public meeting
Various (see ENF Distribution List)	By 12/26/2018	Copy of ENF submitted to federal, state, and local agencies
EOEEA/MEPA	12/26/2018	Publication of the Public Notice in the Environmental Monitor
EOEEA/MEPA	1/31/2019	MEPA consultation session: site walk and ENF public meeting to inform interested members of the public on the proposed projects
EOEEA/MEPA and commenting agencies	2/22/2019	EOEEA/MEPA issues MEPA Certificate on ENF, including comments from several agencies
Massachusetts Historical Commission (MHC)	3/1/2019	Archaeological sensitivity assessment and permit application for intensive survey submitted to MHC
MHC	3/25/2019	MHC issues permit for intensive survey
Wampanoag Tribe	4/2019	Archaeological field work
MHC	7/15/2019	Archaeological intensive survey report submitted to MHC

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Organization	Dates	Topics
MHC	8/15/2019	MHC response to archaeological intensive survey report
DCR	12/16/2019	This meeting was held to discuss the vegetation obstruction removal associated with the runway projects in the EA/EIR and potential impacts to rare species
DCR and NHESP	4/1/2020	The call was held to discuss proposed vegetation management at the Airport and surrounding Correllus State Forest.
NHESP	4/7/2020	The call was held to discuss previous rare species studies undertaken and studies needed for the proposed projects
NHESP and DCR	Six meetings, May 2020 through October 2020	This series of meetings was held to discuss variations and alternatives to the vegetation obstruction removal needs associated with the runway projects in the EA/EIR
Forest Reserve Scientific Advisory Committee	7/8/2020	Airport consultant attended Committee meeting to discuss proposed vegetation management.
NHESP	8/17/2020	List of state-listed rare species provided by NHESP
NHESP	10/22/2020	This meeting was held to present to NHESP the materials from the 10/14/20 biweekly meeting with DCR staff, to answer questions she may have, and discuss permitting options pertaining to rare species.
Wampanoag Tribe	10/26/2020	Archaeological survey plan submitted
State Senator Julian Cyr and State Representative Dylan Fernandes	10/28/2020	Vegetation management plans provided
MEPA	11/2/2020	The purpose of this call was to provide the MEPA office with an update on the EA/EIR for the proposed projects and discuss timing.

Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

Organization	Dates	Topics
DCR and NHESP	11/10/2020	Field meeting to review potential vegetation management areas
U.S. Fish and Wildlife Service	11/12/2019	Information request submitted regarding rare species; response received same day
DCR	12/2/2020	Conference call to discuss easement deed provisions and permitting options for proposed vegetation management
DCR and NHESP	12/17/2020	Conference call to discuss runway approach surfaces, revised vegetation management proposal, and potential easement limits
Wampanoag Tribe	1/2021	Tribal representative observed archaeological field work

9 RESPONSES TO COMMENTS

MEPA regulations at 301 CMR 11.07 require responses to comments on the Draft Environmental Impact Report to be included in the Final Environmental Impact Report. Below, all substantive comments submitted by all commenters are provided in tabular format. The comment number includes a number that refers to the commenter and a number that refers to individual comments made by that commenter. The MEPA Certificate on the Draft Environmental Impact Report and associated comments may be found in Appendix A2. Commenters and their identifiers include:

Commenter	Identifier
MEPA CERTIFICATE	
Executive Office of Energy and Environmental Affairs (MEPA Certificate on the EENF)	C
OTHERS	
Division of Marine Fisheries	1
MA Historical Commission	2
MA Department of Environmental Protection/Southeastern Regional Office	3
Department of Conservation and Recreation	4
MA Department of Transportation	5
MassAudubon	6
MA Division of Fisheries and Wildlife – Natural Heritage and Endangered Species Program	7
MA Department of Energy Resources	8
U.S. Environmental Protection Agency	9

This page intentionally blank

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
C-1	Kathleen A. Theoharides, Secretary	Article 97	The FEIR should confirm that the proposed easements will not restrict public use of the state forest.	Consistent with the prior easements, the easement areas within the State Forest could still be used for recreational purposes but would not be available for use by large groups of people.
C-2		Article 97	Real estate of equal or greater value, and of significantly greater resource value is granted to the disposing agency;	The Airport will continue working with DCR to develop mitigation measures that appropriately compensate for impacts to Article 97 lands and are consistent with the MEPA Article 97 policy. Section 7.11 enumerates how the project will be consistent with the <i>EOEA Article 97 Land Disposition Policy</i> .
C-3		Article 97	The disposition is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests to the Commonwealth.	The State Forest land was originally acquired from many different landowners to protect the heath hen, which has since gone extinct.
C-4		Traffic	The FEIR should provide a description of bus service to the Airport and describe measures undertaken by the Airport to encourage bus ridership and minimize single-occupant vehicle (SOV) trips.	Bus routes and schedules vary by season but there are multiple routes that visit the airport. According to the Vineyard Transit website, there are four bus service schedules for 2021 running between April 9 and October 2. Between May 21 and June 24, 2021, for example, Route #6 runs between Edgartown and West Tisbury and stops at the airport 30 times daily (15 in each direction). Route #7 runs between the Airport and Oak Bluffs, with Airport stops 13 times in each direction; and Route #9 also runs between the Airport and Oak Bluffs along a different route and

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
				<p>stops at the Airport 14 times per day in each direction. All of these lines have more stops on weekends and during the peak season. These lines also allow riders to connect to the other bus lines and reach other island destinations via the Ocean Park stop.</p> <p>To promote the bus service, the Airport website currently provides a link to the Vineyard Transit website, which provides the most up to date scheduling and routes for passengers looking to use the bus service.</p>
C-5		Stormwater	As noted by the EPA, additional information regarding groundwater conditions should be provided to assess the proposed water quality measures.	The groundwater surface is approximately 30 to 50 feet below the ground surface, and groundwater flows in a southerly to southeasterly direction.
C-6		Stormwater	The FEIR should evaluate designs of the stormwater management system that can accommodate increased precipitation and higher-intensity storm events projected under future climate conditions	Because of the highly permeable soils and the level topography of the Airport, all runoff is expected to infiltrate on site over the design life (20 years or so) of Airport infrastructure. During final design of each project, additional analysis will be done to ensure BMPs will control runoff, address peak rate attenuation, provide groundwater recharge, and improve water quality within the design life of each project, considering current and future climate conditions.
C-7		Hazardous Waste	Additional information on the status of the PFAS assessment is required in the Scope for the FEIR. See scope comments for more below:	The FEIR has been updated with current information available on the status of PFAS assessment since the submission of

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			<ul style="list-style-type: none"> -Sampling results -Additional analyses to be conducted -How impacted drinking water wells will be addressed -Overview of anticipated MCP process for this site -How any contaminated excavated material will be handled, stored, treated and/or disposed of -The FEIR should review the potential for PFAS contamination to impact marine resources, as recommended by the Division of Marine Fisheries (DMF) 	the DEIR. Each project will be reviewed individually under the guidance of a Licensed Site Professional. A Soil Management Plan will be prepared and implemented as necessary.
C-8		Hazardous Waste	The NPC/DEIR did not indicate whether any of the soil will be excavated from areas impacted by PFAS and require special handling and disposal procedures. This information should be provided in the FEIR.	The DEIR addressed this in Section 6.5.7. Additionally, as mentioned in Section 7.9 of this document, a Soil Management Plan may be required to determine whether any excavated soils that are generated can be reused onsite, and/or determine requirements for off-site reuse, recycling, or disposal. A Soil Management Plan, if needed, would be developed under the supervision of a Massachusetts Licensed Site Professional.
C-9		Climate Change	<p>The FEIR should provide a comprehensive assessment of climate change impacts to the Airport and identify potential resiliency measures.</p> <ul style="list-style-type: none"> - Evaluate potential impacts of drought and wildfires under existing and projected climate conditions -Design drainage systems with sufficient capacity to ensure runoff can be collected and managed under more frequent and intense storms 	<p>As described in Section 4.7, by mid-century, Martha's Vineyard is expected to be warmer, to likely have more precipitation with more frequent and intense storms, to be at greater risk of wildfire, and to experience sea level rise.</p> <p>Due to its elevation and its centralized location on Martha's Vineyard, sea level rise will not directly impact the Airport.</p>

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
				<p>Because of the Airport's highly permeable soils and its topography, small increases in precipitation amounts or intensity are not expected to exceed the ability of the infiltration infrastructure and existing soils to infiltrate stormwater runoff. However, during final design of each project, additional analysis will be done to ensure BMPs control runoff, address peak rate attenuation, provide groundwater recharge, and improve water quality within the design life (typically 20 years) of each project, considering current and future climate conditions.</p> <p>The Projects' proposed vegetation management would take wildfire into consideration. The management measures will take the upcoming Wildfire Protection Plan recommendations into consideration. Two of the likely management measures are prescribed burns and periodic mowing, both of which would reduce the amount of dead, dry vegetative debris and therefore reduce the potential severity of wildfires.</p>
C-10		GHG Analysis	According to DOER, it is unclear which Building Code pathway that was selected to establish the Base Case and whether all baseline requirements of the Building Code were included in the model. In addition, the NPC/DEIR did not commit to construct the buildings with the measures	All baseline requirements have been incorporated into the model and the code pathway is specified – ASHRAE 90.1-2016 Appendix G. The three Massachusetts Code C406 measures have been incorporated in one alternative, including

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			included in the Design Case described above and did not provide any information on energy efficiency measures incorporated into the design of the new buildings in the industrial park. This information should be provided in the FEIR.	heat pumps for drinking water heaters, improved lighting (10% reduction), and improved HVAC. As reflected in the proposed alternatives, the Airport commits to energy efficiency measures that meet or exceed the MEPA Policy guidelines. Energy efficiency measures in the business park buildings include solar panels, solar readiness, heat pumps, and LED lighting. Leases for these buildings were signed prior to the MEPA/NEPA process, and the Airport cannot change the terms of the leases. One of these buildings has been constructed and the second is under construction.
C-11		GHG mitigation	The FEIR should include a review of potential GHG mitigation measures, including energy efficient building design, and the measures described above, and implementation of a Transportation Demand Management (TDM) plan to minimize SOV trips to and from the site. The FEIR should include a commitment to provide a self-certification to the MEPA Office at the completion of the project. It should be signed by an appropriate professional (e.g. engineer, architect, transportation planner, general contractor) indicating that all of the GHG mitigation measures, or equivalent measures that are designed to collectively achieve identified reductions in stationary source GHG emission and transportation related measures, have been incorporated into the project.	<p>Section 5.5 addresses various building design alternatives for energy efficiency, such as variable refrigerant flow (VRF) with energy recovery ventilators (ERV), upgraded high efficiency lighting and lighting controls, and improved curtain wall and building envelope. See Appendix D for details.</p> <p>The proposed energy conservation measures reflect the Airport's commitment to energy efficiency and will be considered when the project moves into the design stage. Since the projects are not scheduled to be constructed immediately (and the terminal not until 2028), it would be premature to commit to a specific set of measures, as</p>

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
				technologies are evolving. The Airport commits to revisiting these measures during the final design process and implementing energy-efficiency measures which meet or exceed regulatory guidelines.
C-12		Construction	Additional information should be provided in the FEIR regarding the sampling, excavation, handling, and disposal of asbestos in buildings to be demolished and contaminated soil and groundwater, including soil and groundwater impacted by PFAS.	Asbestos is addressed in Section 5.14.3. An ACBM survey and sampling will be conducted prior to any demolition activities. If asbestos is detected in the samples then the building materials will be properly abated by a licensed contractor in accordance with all applicable state (310 CMR 7.15) and federal regulations prior to demolition activities. Pursuant to 29 CFR 1910.1001 (OSHA asbestos regulations) and 29 CFR 1926.1101 (OSHA construction-specific asbestos regulations), the requisite PPE, monitoring, and other hazard mitigation procedures will be implemented to protect contractors, airport workers, and the public.
C-13		Rare Species	The FEIR should include a proposed mitigation plan to address impacts to rare species habitat, including construction-period impacts. The Proponent should review DCR's recommendations related to tree clearing procedures and commit to feasible measures that will advance rare species habitat maintenance and improvement.	The Airport has been coordinating with NHESP regarding rare species impacts and mitigation, and coordination and research are ongoing. Mitigation plans will be completed during the permitting process.
C-14		Article 97	The FEIR should provide an updated analysis consistent with the EEA Article 97 Land Disposition	Section 7.11 addresses the exceptional circumstances which must be met under

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			Policy that addresses all criteria for determining when “exceptional circumstances” exist such that a disposition of Article 97 land may be appropriate. The FEIR should provide a plan showing the additional 12 acres of DCR land that may be needed for future vegetation management activities and include this area in the updated Article 97 analysis.	the Land Disposition Policy. Coordination with DCR staff regarding Article 97 is ongoing and will ensure all Article 97 requirements are met. The potential easement areas are shown in Figure 5-5.
C-15		Article 97	The FEIR should describe any proposed activities affecting the DCR shared-use path and identify measures, if necessary, to ensure its uninterrupted use by the public.	The Airport will coordinate with the Martha's Vineyard Joint Transportation Committee and its Bicycle and Pedestrian Advisory Committee to ensure the continued and safe use of the shared-use paths on Barnes Road and Edgartown-West Tisbury Road. The Airport will also coordinate with the towns of Edgartown and West Tisbury on any construction period signage and lighting that may be needed for safe traffic conditions, including the safe use of the shared-use path.
C-16		Solid/Hazardous Waste	The FEIR should review the feasibility of on-site reuse of asphalt removed from runways and taxiways.	As described in Section 5.14.4, solid waste such as construction and demolition debris will be recycled as appropriate and sent off-site to an appropriate receiving facility.
C-17		Construction	The FEIR should include a separate chapter summarizing proposed mitigation measures, including construction period measures. This chapter should also include draft Section 61 Findings for each permit to be issued by State Agencies.	Chapter 6 of the EIR/EA summarizes mitigation measures and draft Section 61 findings.

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			<ul style="list-style-type: none"> -Clear commitments to implement mitigation measures -Estimate individual cost of each measure -Identify parties responsible for implementation -Provide a schedule for implementation (provide context of construction phasing) 	
C-18		Comments	The FEIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the FEIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the FEIR beyond what has been expressly identified in this certificate.	The FEIR contains a copy of the Certificate and comments letters, along with this chapter dedicated to responses to comments.
C-19		Circulation	<p>The Proponent should circulate the FEIR to those parties who commented on the ENF and/or NPC/DEIR, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations.</p> <ul style="list-style-type: none"> -Either in CD-RON format or by directing commenters to a project website -A reasonable number of hard copies must be made available to accommodate those without convenient access to a computer (first come first serve basis) or to be available upon request 	These parties are included in the distribution list, included as Appendix B. The distribution will be made as noted and hard copies will be available from the Airport upon request. A notice of availability will be sent with the website address, information about obtaining hard copies, comment deadlines, and appropriate addresses for submission of comments.
1-1	MA Division of Marine Fisheries	Hazardous Waste	MA DMF recommends that the final EA/EIR further elaborate on proposed PFAS monitoring under this separate endeavor. Specifically,	The FEIR has been updated with current information available on the status of PFAS assessment since the submission of

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			monitoring of PFAS transfer to nearby estuarine environments should be addressed.	the DEIR. Each project has been and will continue to be reviewed individually under the guidance of a Licensed Site Professional. A Soil Management Plan will be prepared and implemented for each project as necessary.
2-1	Massachusetts Historical Commission	Historic Resources	Previous archaeological investigations suggest that the majority of the airport exhibits low archaeological sensitivity, due to previous disturbances associated with past military construction activities. The MHC recommends no further archaeological survey for the overall Capital Improvements Plan projects as proposed. In the MHC's staff opinion, the Capital Improvements Plan project as proposed are unlikely to affect significant historic or archaeological resources.	Comment noted.
3-1	MassDEP Bureau of Waste Site Cleanup	Hazardous Waste	The Proponent's response to MassDEP's comments (response to DEP-8 on page 9-21 (pdf page 127)) should be clearer.	Comment DEP-8 in the DEIR/EA pertained to the handling of PFAS-contaminated soil. Soils that are excavated from areas proximate to known or suspected AFFF releases will be segregated and placed upon and covered by polyethylene sheeting pending the results of sampling and laboratory analysis. Composite soil samples will be collected from stockpiles of segregated soil and submitted for laboratory analysis of PFAS. The PFAS analytical results shall be compared to the MCP Method 1 soil standards to assess potential on-site reuse and/or off-site disposal options. Soils with PFAS concentrations less than the MCP Method

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
				1 S-1/GW-1 standards may be suitable for <u>on-site</u> reuse without restriction. Soils with PFAS at concentrations greater than the MCP Method 1 S-1/GW-1 standards that are to be disposed off-site shall be managed under RTN 4-27571 in accordance with the MCP and associated policies and guidance.
3-2	MassDEP Bureau of Waste Site Cleanup	Hazardous Waste	Regarding the response to comment #DEP-9, the Proponent states that “soils will be tested for contaminants in accordance with state guidelines.” As of now, there are no guidelines requiring PFAS analysis. However, PFAS analysis will be required given that the airport has not delineated the extent of contamination as of the writing of this email. MassDEP again underscores the requirement that the airport LSP discuss the activities prior to the commencement of construction involving soil removal.	Each project will be reviewed individually under the guidance of a Licensed Site Professional. A Soil Management Plan will be prepared and implemented as necessary.
3-3	Bureau of Air and Waste	Air Quality	To further clarify, this means that all aircraft, once on the ground, should cease to operate its engines until such time when departure is warranted. Alternatively, to running these engines on idle, when warranted to maintain comfort within these aircraft during the warm summer months, plug in stations should be provided by the airport as an alternative to the greenhouse gas emissions, air pollutant emissions and noise that are emitted while these engines continue to operate while on the ground to keep onboard systems (refrigeration, air conditioning, etc.) running.	Aircraft parked on the reconfigured Southwest Ramp will predominately include single engine and small twin-engine piston aircraft. As these aircraft will predominately be propeller driven, once an aircraft is parked, the engines will be turned off and not turned back on until just before the pilot is prepared to taxi. On both aprons, should power be required for an aircraft while it is parked, the aircraft's auxiliary power unit (APU) could be utilized. However, the use of a ground power unit (GPU) will be prioritized and

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
				<p>recommended by the Airport for aircraft that are parked and not completing take-off preparations or safety checks. GPUs are available for use by pilots at MVY and can be requested from the Fixed Base Operator.</p> <p>It is anticipated that aircraft idling, or the use of APUs, will occur during required pre-flight checks, as well as in instances where aircraft have departed the apron or are prepared to depart the apron and are awaiting air traffic control (ATC) clearance to depart the Airport, particularly during periods of high congestion within both the airspace in the Martha's Vineyard area or at the destination airport. In these instances, where aircraft are loaded and pre-flight checks are complete and the aircraft is awaiting clearance to depart, the aircraft may remain idling in order to access the runway and takeoff when clearance is provided by ATC. The Airport has a posted time limit of 15 minutes for APU operation. Aircraft will continue to utilize the closest entrance and exit points on each apron and will taxi directly to or from the runways where they are operating.</p>
3-4	Bureau of Air and Waste	Air Quality	the Proponent is required to provide the Department with an analysis of alternatives to idling (plug in stations) to address GHG, air quality	See the response to Comment 3-3 above. The Proposed Action is not expected to result in increases in aircraft idling times and should result in more efficient aircraft

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			in general and noise, and the proposed mitigation measures to reduce those emissions.	movements. As explained in Section 5.5.1.2.2, the changes to the Southeast Ramp will result in aircraft parked facing outward, which would reduce aircraft noise for those south of the Airport.
3-5	Bureau of Air and Waste	Solid Waste Management	The Proponent should be aware that the Project will require the handling of clean wood associated with tree removal...Clean wood may be handled in accordance with 310 CMR 16.03(2)(c)7 which allows for the on-site processing (i.e., chipping) of wood for use at the Site (i.e., use as landscaping material) and/or the wood to be transported to a permitted facility (i.e., wood waste reclamation facility) or other facility that is permitted to accept and process wood.	Clean wood will be handled in accordance with 310 CMR 16.03(2)(c)7. The Airport will continue to work with DCR on all aspects of tree removal and management.
3-6	Bureau of Air and Waste	Industrial Wastewater	Martha's Vineyard Airport is required to demonstrate the ability to apply extinguishing agent as part of its FAA Part 139 safety certification. The capital improvements to the airport should include provisions to collect the wastewater containing the extinguishing agents generated during these demonstrations and/or training events so that proper treatment and/or disposal can occur in conformance with Massachusetts requirements.	The Airport has recently invested in technology that avoids discharging the foam during testing.
4-1	MA Dept. of Conservation and Recreation	Vegetation Management	The Department provides the following initial recommendations to preserve the structural composition of rare priority natural communities to the maximum extent possible: -Pitch Pine/Oak Canopy: selective oak removal (retain larger diameter, well-formed oaks less than 20-feet tall unless predicted to penetrate airspace within the next 35 years), removal of all	The Airport generally agrees with this approach and will continue working with DCR and NHESP to develop the plan. More investigation and dialogue will be needed in relation to certain aspects of the plan, such as: <ul style="list-style-type: none"> • During final design of the vegetation management projects,

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			<p>evergreens, preservation of understory with avoidance measures during tree removal</p> <p>-Coastal Forest/Dense Oak/White Pine with Blueberry/Huckleberry understory: removal of all evergreens, selective oak removal, preservation of understory with avoidance measures during tree removal</p> <p>-Tall white Pine Forest/Open Understory: removal of all evergreens, preservation of any understory that is present with avoidance measures during tree removal.</p> <p>-Scrub oak: preservation of scrub oak present in all tree removal areas to the maximum extent possible. Prioritization of larger/multi stemmed clumps for protection</p> <p>-Removal of cut trees and majority of slash, and no chipping on site</p> <p>-Invasive species assessment prior to work activities, implementation of invasive species management and spread prevention techniques during the cut, and monitoring/reporting to DCR for inventory and monitoring on DCR easements</p>	<p>more analysis will need to be done to determine whether any trees are less than 20 feet tall and would not penetrate airspace for at least 35 years, and the implications for future management.</p> <ul style="list-style-type: none"> • There will need to be discussions about tree removal means and methods, such as the feasibility of removing slash. • There will need to be agreement on future, ongoing vegetation management strategies, such as how to prevent tree regrowth and how to encourage desirable vegetation growth; and whether to mow, brush-hog, selectively cut, or burn tree removal areas to maintain them. <p>The Airport will continue to work with DCR and NHESP on these issues and in developing the vegetation and habitat management plan.</p>
4-2	DCR	Vegetation Management /Bike Path	<p>The department requests coordination with the proponent to protect and enhance the bike path with the following specific recommendations:</p> <p>-Maintain and enhance the vegetative barrier along the roadside edge of the bike path for shade, safety, and aesthetic purposes</p> <p>-Maintain and enhance the vegetative barrier along the eastern edge of Barnes Road to</p>	<p>The tree removal will alter views along the roads and shared-use path but will not be a visually intrusive change. Furthermore, removal of canopy trees will encourage dense, tall shrub growth which may serve as a better visual buffer between the shared-use path and roadway. This tall shrub buffer will be incorporated into the</p>

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			discourage unauthorized vehicular access into the State Forest.	plans for the segments along both Barnes Edgartown-West Tisbury Roads, to the extent practicable. The 150-foot wide approach light plane in the Runway 24 approach requires vegetation to be cut to the ground periodically, so that segment will not have a screen between the path and road.
4-3	DCR	Article 97	Transfers of interests in state conservation property must meet the requirements set forth in the Executive Office of Energy and environmental Affairs ("EEA") Article 97 Land Disposition Policy (the "Policy"). The Policy has the stated goal of ensuring no net loss of Article 97 lands. Transfer of ownership or interests therein only may occur under exceptional circumstances, as defined in the Policy, including the determination that no feasible alternative is available, and a minimum amount of land or an interest therein is being disposed for the proposed use. Transfer also requires authorization by the General Court through a two-thirds supermajority roll call vote.	The Airport is coordinating with DCR and other state agencies to ensure compliance with Article 97, and will follow the protocols for transfer of land if required. Section 7.11 details how the Project will meet each of the Land Disposition Policy requirements.
4-4	DCR	Permitting	A DCR Construction and Access Permit for activities allowed under a conservation permit issued by NHESP will be needed for permitted vegetation management activities on DCR property that occur between the passage of Article 97 legislation and the recording of the easement.	All necessary permits will be obtained and anticipated permits have been identified in Chapter 6. It is the Airport's understanding that the Construction Access Permit will be needed for tree removal conducted prior to Article 97 approvals and easement acquisition.
5-1	MassDOT	Traffic	We note that all proposed improvements within the state highway layout and internal site circulation must be consistent with a healthy	The Airport has an existing shared-use path intersecting Airport Road. During final design of proposed Airport Road and

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			transportation design approach that provides adequate and safe accommodation for all roadway users, including pedestrians, bicyclists, and public transit riders.	terminal projects, ways to safely accommodate all roadway and path users will be considered.
5-2	MassDOT	Traffic	The proponent should work with the Highway Division District 5 Office to finalize the design and implementation of the intersection improvement project.	The Airport commits to working with the Highway Division District 5 Office during final design of the intersection improvements.
5-3	MassDOT	Traffic/public transit	The Proponent has also indicated that they would continue to pursue their goal to reduce single occupancy vehicle trips by promoting the use of the Martha's Vineyard Transit Authority's bus services and utilizing the taxi and livery services that are already available at the airport	The Airport currently provides links to the bus schedule on their website. Given the seasonal changing of schedules, the website is the best resource to determine active bus routes and schedules.
6-1	Mass Audubon	Hazardous materials	The Final EIR should contain more specific information including further details on the status of cleanup plans for the existing PFAO/PFAS contamination and how soils in those areas will be managed during construction; <u>a schedule for updating the SPCC Plan including measures to address both routine operations and emergency incidents</u> ; and details on the fuel farm showing that any accidental fuel spills there can be fully contained.	The FEIR has been updated with current information available on the status of PFAS assessment since the submission of the DEIR. Each project will be reviewed individually under the guidance of a Licensed Site Professional. A Soil Management Plan will be prepared and implemented as necessary. The Airport plans to update the SPCC Plan during the next fiscal year. The fuel farm will have the existing oil/water separator removed and replaced by a deep sump hooded catch basin that drains to a new oil/water separator.
6-2	Mass Audubon	Habitat Management	The FEIR should include the draft proposed updated habitat management plan, including information on habitat management activities conducted to date and a summary of the results and revised and enhanced management to	The Airport will provide an accounting of the prior CMP impacts and mitigation measures in preparing a new mitigation plan and CMP application. The plan will be developed in coordination with and

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			address the new impacts and any refinements warranted based on the experience with habitat management at the site to date.	approved by the NHESP and DCR during the permitting phase.
6-3	Mass Audubon	Rare Species/ Grassland Management Plan	We reiterate our previous comments in support of a carefully designed and implemented grassland management plan (including mowing schedules) for the site that could potentially enable the property to support species including Grasshopper Sparrow, Eastern Meadowlark, and Savannah Sparrow. The Pitch Pine/Scrub Oak habitat around the airfield, both on the property and in the adjacent state forest, is important to several species including the Eastern Towhee, Prairie Warbler, and Eastern Whip-poor-will. Whip-poorwills are listed as being of Special Concern in Massachusetts (https://www.mass.gov/files/documents/2016/08/tm/antrostromus-vociferus-2015.pdf), and the Manuel Correllus State Forest and vicinity is listed as one of “only six sites in Massachusetts that support 20 or more pairs of Whip-poor-wills.” We also reiterate our suggestion for the pursuit of a multi-year research plan focused on monitoring Eastern Whip-poor-wills in the state forest. Northern Bobwhite, American Woodcock, and Chuck-will’s-widow also have been documented in the area surrounding the airport.	Impacts to rare species and their habitat are addressed in Section 5.9. The Airport is working closely with both NHESP and DCR regarding impacts to rare species, habitat and the State Forest, and mitigation for these impacts.
6-4	Mass Audubon	Habitat Management	The FEIR should contain further details including the draft proposed plans for ecological monitoring and habitat management.	Any required ecological monitoring and habitat management will be identified in the CMP application and new habitat management plan prepared during the permitting phase.

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
6-5	Mass Audubon	Article 97	The proposed project includes clearing of trees and other vegetation management within the state forest. This is an alteration of publicly owned conservation lands protected under Article 97 of the State Constitution. Mass Audubon believes that mitigation should be required, and should be coordinated with the habitat monitoring and management program mentioned above, including funding for some research and management of habitat on DCR land.	Article 97 coordination is still in progress with DCR and other agencies. Mitigation will be an important component of the project, and the mitigation plan will be developed in consultation with NHESP and DCR.
6-6	Mass Audubon	Energy	Mass Audubon supports the proposed plans to make building as the airport solar-ready, and hopes to see a firm commitment to deployment of solar in the FEIR.	The Airport plans to make new buildings solar-ready, but some projects are many years in the future and technology is rapidly changing, so no firm commitment to a specific technology can be made at this time.
7-1	MA Division of Fisheries of Wildlife	Rare Species	Based on consultation to date, it appears the Proponent has incorporated alternatives that reduce impacts to state-listed species and their habitats. The Airspace Vegetation Management has the potential to enhance habitat for many state-listed invertebrate and plant species. Cumulatively, the CIP projects propose a net reduction in new impervious surface. Notably, the Runway 6-24 Side Safety Area (Np-Build Alternative), if approved by the FAA, would avoid the alteration of +/- 26.4 acres of grassland habitat and avoid direct impacts to state-listed plant species.	Comment noted.
7-2	MA Division of Fisheries and wildlife	Rare species	We recommend that the Proponent continue to proactively consult with the Division on a pre-filing basis to evaluate and address concerns related to state-listed species and their habitats and to	The Airport will continue to consult with the Division regarding these subjects.

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			further develop a detailed long-term net benefit plan for unavoidable impacts to state-listed species and their habitats.	
8-1	DOER	GHG Analysis	For the next submission, we request that the project provide more information about code baseline used and more details about proposed improvements, as described herein. Reported emissions reduction may need some revision.	<p>All baseline requirements have been incorporated into the model, including three C406 measures, and the code pathway is specified. Emissions reductions have been updated. The three C406 measures are heat pumps for drinking water heaters, improved lighting (10% reduction), and improved HVAC.</p> <p>As is reflected in the proposed alternatives, the Airport commits to energy efficiency measures in the hangars and terminal building that meet or exceed regulatory guidelines.</p>
8-2	DOER	Energy	The next submission should also provide information about mitigation measures which were used on Business Park Lot 38 (now built) and mitigation measures which will be required for Business Park Lot 34	<p>The building on Lot 38 has approximately 1000 square feet of office space that is insulated and heated with two mini-split heat pump units. The downstairs and upstairs bathrooms are insulated and heated with electric heaters. A portion of the warehouse includes plumbing for laundry machines and is heated with a propane heater. The rest of the building is unheated. The building has solar panels that produce enough electricity to support all of the building's electrical needs.</p> <p>The building on Lot 34 will be unheated except for the two bathrooms which will</p>

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
				<p>have electric wall heaters. All the lighting fixtures in both buildings are LED.</p> <p>Development of lots 34 and 38 of the Business Park are privately financed. The Business Park was established over 20 years ago, with most lots developed between 1998 and 2001, followed by incremental building since that time. This area has long been targeted for commercial development and has received local permits and approvals for this use. Furthermore, the consumption of water, electricity, and heating fuel, along with the production of wastewater, have been planned for and will not exceed the capacities of existing utilities.</p>
8-3	DOER	Energy	<p>The next submission should identify the code pathway used and show that the Baseline incorporates all the amendments, including the three C406 measures. The same C406 measures used in the Baseline should also be used in the proposed. Compliance with C406 measures does not count as GHG mitigation...</p> <p>The next submission should provide the specifications of the code Baseline and Proposed envelope. Specifically, for the terminal building and each of the hangers, provide the following information on vertical wall performance which will quantify the overall, aggregate "UA" improvement over code Baseline...</p>	<p>See response to Comment 8-1 regarding baseline and C406 measures.</p> <p>The hangars have been changed to be unconditioned, so the frame is presumably not a concern. The terminal is assumed to be conditioned and steel-framed.</p> <p>The baseline wall U value is 0.055 and the proposed wall U value is 0.03.</p> <p>The baseline and proposed window U values are both 0.42 and the solar heat gain coefficients (SHGC) are both 0.40.</p>

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			<p>The above was developed based on the assumption that the hangers and terminal building are steelframed. This should be confirmed. The next submission should also confirm that the “semiheated” designation is not being use for either of the hangers.</p> <p>For all buildings, the next submission should provide information about the proposed roof insulation for each building, and comparison to code Baseline.</p> <p>Finally, for all buildings, the next submission should provide information about the air infiltration for each building, and how that compares to code Baseline.</p>	<p>The roof U values are 0.032 for the baseline and 0.02 for the proposed.</p> <p>The baseline and proposed air infiltration rate is 0.40 ACH (Air Changes per Hour).</p>
8-4	DOER	Energy	DOER recommends electric heat pump water heating for all building on this project. The next submission should confirm whether electric heat pump water heating will be used for all buildings.	The Airport is proposing electric heat pump water heating for the terminal and hangars.
8-5	DOER	Energy	The submission should contain scaled roof plans showing anticipated rooftop appurtenances and set asides for solar PV.	Roof plans have not yet been developed but the Airport is committing to making new building rooftops solar PV-ready and to meet or exceed code requirements, to the extent practicable.
8-6	DOER	Energy	Maximize EV-ready parking spaces. Confirm commitment to installed EV charging station and EV ready spaces.	The Airport intends to install two or three electric vehicle charging stations in the near future.
9-1	USEPA	Groundwater	We recommend that a map showing groundwater contours and flow directions be provided to better describe the context and existing environment for the proposed project. This map should show the location of monitoring wells and provide	As described in Section 4.4.4, the aquifer surface, based on studies published in

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			information on how the groundwater contours were developed.	1989 ³⁶ and 1997 ³⁷ , is approximately 30 to 50 feet below the ground surface and flows in a southerly to southeasterly direction. See monitoring well data in Appendix H.
9-2	USEPA	Groundwater	We recommend that the discussion in Section 5.2 be expanded to provide more specific information about how the aquifer will be protected. We specifically recommend additional detail regarding how the airport will protect groundwater from runoff, spills, or accidents at the airport.	<p>The Massachusetts Stormwater Management Standards mandate that no new stormwater conveyances may discharge untreated runoff directly into wetlands or waters of the Commonwealth. Martha's Vineyard Airport is unusual in that most of the runway and taxiway pavement is located on coarse sandy soils (Carver loamy sand) which are highly permeable and favorable for stormwater infiltration and groundwater recharge. However, because this soil is so permeable (greater than 2.4 inches infiltration per hour), the stormwater requires additional treatment to avoid a direct discharge to the sole source aquifer. For most projects, series of BMPs are proposed that combined treat from 89 to 97 percent of Total Suspended Solids. See Section 5.2 for more details.</p> <p>NPDES also regulates discharges of stormwater runoff from industrial sites, including airports, to Waters of the U.S. Discharges are regulated through the</p>

³⁶ Dufresne-Henty (1989). *Final Environmental Impact Report, EOE 6503, Groundwater Management Plan.*

³⁷ Rizzo Associates, Inc. (1997). *Phase I – Initial Site Investigation and Tier Classification.*

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
				<p>Multi-Sector General Permit program. Because the Airport does not have any stormwater discharges to Waters of the U.S., it is not subject to this permit program. However, the Airport voluntarily follows stormwater pollution prevention best practices and in 2012 prepared a Draft Stormwater Pollution Prevention Plan (SWPPP) for use in ongoing Airport operations and maintenance.</p> <p>Spills and accidents will be managed by strict adherence to the Spill Prevention, Control, and Countermeasure Plan. The plan was last updated in 2012 and the Airport has committed to updating it in the next fiscal year. The SPCC Plan includes an inventory of existing facilities, materials handled, drainage systems, emergency response procedures, and other spill prevention and countermeasure procedures.</p>
9-3	USEPA	Groundwater	Given the location of the proposed project within a Sole Source Aquifer and the extent of construction proposed at the site, EPA recommends that the airport's SPCC Plan be updated prior to construction. For more specific information about requirements with the SPCC rule, refer to www.epa.gov/oil-spills-prevention-and-preparedness-regulations/spill-prevention-control-and-countermeasure-19 . Questions regarding the SPCC rule should be directed to	The Airport has committed to update the SPCC plan within the next fiscal year.

*Martha's Vineyard Airport – Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Comment#	Commenter	Topic	Comment	Response
			EPA's Joe Canzano at canzano.joseph@epa.gov or 617-918-1763	
9-4	USEPA		The final EIR/EA should identify any infiltration systems that may require registration under MassDEP's UIC program. EPA strongly recommends that any underground injection, including stormwater infiltration systems that are part of the proposed project, be monitored closely and maintained effectively. The final EIR/EA should provide a description of proposed monitoring and maintenance plans for any systems proposed for the project.	Proposed stormwater treatment measures are identified on Figures 3-1 through 3-28 and further described in Section 5.2.1. All of the proposed stormwater systems involving infiltration will require UIC registration and will be registered with the state prior to construction. Stormwater infrastructure will be monitored and maintained in accordance with applicable laws, regulations, and standard practices.
9-5	USEPA	Natural Resources and Energy Supply/Groundwater	We strongly encourage the airport to coordinate with the Oak Bluffs Water District regarding increased water demands from the project and safeguards for the Zone II groundwater protection area located on the northern section of the airport property. Michael Silva is the Superintendent of the Oak Bluffs Water District and he can be reached at (508) 693-5527 or msilvia@oakbluffswater.com.	Water consumption is not expected to exceed the available supply. The terminal will be larger but will be servicing the same numbers of passengers and employees as under the No-Build. The hangars will have bathrooms and possibly some indoor/outdoor water usage. Business Park Lot 38 is an event service with bathroom and laundry facilities that uses less than 10,000 gallons of water per month off peak and up to 35,000 gallons/month peak. Lot 34 will be a similar business but will have bathrooms but no laundry. The Airport will be incorporating sustainable measures to reduce water consumption (i.e., all new plumbing fixtures would be low flow/flush). The Oak Bluffs Water District Superintendent reports there will be a sufficient amount of water available for the proposed projects.

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX A-1

MEPA Certificate on the Environmental
Notification Form



The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Charles D. Baker
GOVERNOR

Karyn E. Polito
LIEUTENANT GOVERNOR

Matthew A. Beaton
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1081
<http://www.mass.gov/eea>

February 22, 2019

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : Martha's Vineyard Airport Proposed Capital
Improvement Plan Projects
PROJECT MUNICIPALITY : Edgartown and West Tisbury
PROJECT WATERSHED : Islands
EEA NUMBER : 15964
PROJECT PROPONENT : Martha's Vineyard Airport Commission
DATE NOTICED IN MONITOR : December 26, 2018

Pursuant to the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62I) and Section 11.03 of the MEPA Regulations (301 CMR 11.00), I hereby determine that this project **requires** the preparation of a mandatory Draft Environmental Impact Report (DEIR).

As described in the Environmental Notification Form (ENF), the Proponent has identified nine capital improvement projects for implementation at the Martha's Vineyard Airport (Airport). These projects include:

1. Regrade ground surface adjacent to Runway 6/24 by up to approximately 616 feet (ft) to meet Federal Aviation Administration (FAA) guidelines;
2. Rehabilitate Runway 15/33, remove the existing 37.5-ft paved shoulders along the runway and regrade ground surface adjacent to the runway to meet FAA guidelines;
3. Construct an approximately 140-ft by 120-ft concrete fuel pad at the Fuel Farm to contain potential fuel leaks;
4. Renovate and expand the Terminal Building by approximately 13,300 square feet (sf), construct 549 parking spaces and add a right turn lane for exiting vehicles;
5. Remove Taxiway E and reconstruct it in a different configuration;

6. Pave the transient turf tie-down area to provide parking spaces for airplanes;
7. Expand the Southeast Ramp and adjust the location of Taxiway B;
8. Expand the Southwest Ramp by removing four hangars and paving turf areas; and,
9. Construct four new hangars.

According to the ENF, the projects were identified in the Capital Improvement Plan included in the airport's 2016 Master Plan Update.¹ The projects will be constructed in three phases, with the rehabilitation of the runways and fuel pad construction to begin in 2020, the terminal building expansion and renovation in 2022, realignment of Taxiway E in 2023 and the remainder of the project components in 2024. The runway, ramp and terminal projects are proposed to meet FAA's safety guidelines, replace airplane parking space lost to runway safety requirements and improve the passenger and luggage security screening process. The Proponent has indicated that other projects, such as the construction of new hangars and additional parking spaces, may be dependent on future demand. The Proponent will be required to clarify the phasing of the projects in the DEIR.

Project Site

The project site covers an area of 688 acres in West Tisbury and Edgartown. It includes the Airport with associated runways, buildings, structures, and parking lots, and a business park on the eastern side of the site. The project site is generally bounded by Edgartown-West Tisbury Road to the south, and Airport Road to the east. Undeveloped wooded land, including the Department of Conservation and Recreation's (DCR) Manuel F. Correllus State Forest, borders the site to the west and north. The area south of Edgartown-West Tisbury Road is comprised primarily of residential uses.

The Airport provides general aviation (GA) and passenger airline services. It averaged 51,151 flights per year between 2000 and 2013, with 47 percent of all flights occurring during the peak summer season (June-August). The Airport includes two paved runways. The primary runway, Runway 6-24, is aligned northeast-southwest and is 5,504 ft long by 150 ft wide. It has been designed in accordance with Airport Reference Code (ARF) C-III to accommodate approach speeds of 121-140 knots and airplanes with wingspans of 79-117 feet. This runway is equipped with a precision Instrument Landing System (ILS). Runway 15-33 is oriented northwest-southeast and is 3,328 ft long and 75 ft wide. It has been designed to accommodate approach speeds of 91-120 knots and airplanes with wingspans of 49-78 feet (ARF B-II). Six paved taxiways (designated A, A1, B, C, D and E) provide access between the runways and airplane parking areas, which are known as aprons or ramps. Taxiway A is located south of, and runs parallel to, Runway 6-24 and is connected to the runway by Taxiways A1, B, C and D. Taxiway E runs diagonally between Runway 15-33 and Runway 6-24. The fuel pad, ramps and aprons, hangars and terminal are located south-southeast of Taxiway A.

With the exception of the developed areas around the terminal and business park, the site is located within Priority Habitat and Estimated Habitat of rare species as mapped in the 14th Edition of the *Natural Heritage Atlas*. According to the Natural Heritage and Endangered Species Program (NHESP) the site contains habitats that support 29 state-listed rare species,

¹ "Martha's Vineyard Airport Master Plan Update, September 2016, prepared by Jacobs," downloaded from <https://mvyairport.com/airport-master-plan/> on February 11, 2019.

including 21 species of invertebrates, five plant species and three bird species. According to the Massachusetts Historical Commission (MHC), the airport is included in the Inventory of Historic and Archaeological Assets of the Commonwealth (MHC #WTI.HA.21) because of its former use as a military airfield. Previous archaeological investigations of the site have indicated that the site has a low archaeological sensitivity due to development activities.

Environmental Impacts and Mitigation

Potential environmental impacts of the projects include alteration of 118.1 acres of land, creation of 17.4 acres of impervious area, alteration of approximately 117 acres of rare species habitat, construction of 549 parking spaces (918 total parking spaces), increased water use from 13,369 gallons per day (gpd) to 15,119 gpd and increased wastewater generation from 10,695 gpd to 12,095 gpd. Greenhouse Gas (GHG) emissions and other air pollutants are associated with the burning of fossil fuels for airplanes, on-site energy use and automobile travel by residents and visitors to the site.

The projects will minimize and mitigate impacts associated with transportation through implementation of Transportation Demand Management (TDM) measures such as encouraging use of public transit and other alternate modes of travel. It will increase pervious area by 0.28 acres, including a 5,000-sf (0.1 acres) public park and a 10,000-sf (0.23 acres) landscaped buffer. The project design includes a stormwater management system with Best Management Practices (BMPs) to improve water quality, reduce flow rates and infiltrate stormwater. The project will employ measures to conserve water and contribute to Infiltration/Inflow (I/I) reduction to preserve sewer capacity. The project will mitigate GHG emissions by incorporating energy efficiency and resiliency measures into the building and site design.

Permitting and Jurisdiction

The group of projects is undergoing MEPA review and is subject to preparation of a mandatory EIR pursuant to 301 CMR 11.03(1)(a)(1) and 11.03(1)(a)(2) because it requires State Agency Actions and will result in direct alteration of 50 or more acres of land and creation of 10 or more acres of impervious area. It also exceeds ENF thresholds at 11.03(2)(b)(2) (greater than two acres of disturbance of designated priority habitat) and 11.03(6)(b)(15) (construction of 300 or more new parking spaces). The project requires a Vehicular Access Permit from the Massachusetts Department of Transportation (MassDOT), a Conservation and Management Permit (CMP) from NHESP and Federal Consistency review by the Massachusetts Office of Coastal Zone Management (CZM). It is subject to the MEPA GHG Emissions Policy and Protocol.

The project requires Development of Regional Impact Review by the Martha's Vineyard Commission (MVC). It will require the preparation and review of an Environmental Assessment under the National Environmental Policy Act (NEPA) and a National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit from the United States Environmental Protection Agency (EPA).

The Proponent has received Financial Assistance from the Commonwealth through MassDOT and may seek additional funding. Therefore, MEPA jurisdiction is broad and extends

to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment, as defined in the MEPA regulations.

Public Comments

I received comments from State and local agencies and organizations that identified analyses and information that should be provided in the DEIR. I also received comment letters from many residents expressing their concerns that the projects will exacerbate congestion on the island in the summer, impact habitat, air quality and water resources and affect residential properties through increased noise and light. In the DEIR, the Proponent must provide responses to all comments received on the ENF. The Scope for the DEIR requires the Proponent to resolve inconsistencies in the ENF, describe the purpose of each component of the project, and provide greater detail with respect to potential environmental impacts and proposed mitigation measures. The DEIR should clarify the extent to which the project is intended to support current and anticipated levels of passenger volumes and aircraft activity or promote increased airport operations.

SCOPE

General

The DEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. The DEIR should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent feasible.

Project Description and Permitting

The ENF included a basic description of existing and proposed site conditions and provided conceptual-level project descriptions and plans. For each project, the ENF reviewed Build and No Build alternatives and, in some cases, alternative configurations. It quantified impacts of each project on land alteration, impervious area and rare species habitat. The ENF acknowledged the need to mitigate environmental impacts but generally did not identify specific mitigation measures.

The DEIR should include plans and a detailed description of existing conditions. It should describe the projects and identify any changes since the filing of the ENF. The DEIR should include updated site plans for existing and post-development conditions at a legible scale. Conceptual plans should be provided at a legible scale and clearly identify buildings, uses within buildings, public areas, impervious areas, and stormwater and utility infrastructure. The DEIR should identify and describe State, federal and local permitting and review requirements associated with the projects and provide an update on the status of each of these pending actions. It should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the projects' consistency with those standards.

To provide context for the projects, the DEIR should provide an overview of the airport's functions and activities related to GA and commercial services, with a focus on the role each of the project components plays in the operation of the airport. It should provide a general

description of airport operations, including hours of operation, conditions under which each runway is used, airplane taxiing and parking, use of hangars and Transportation Security Administration (TSA) procedures. The DEIR should address noise and lighting associated with operation of the airport, review past and future monitoring and identify measures undertaken by the airport to minimize these impacts. It should include data on past, current and projected levels of passenger volumes and aircraft operations on both an annual basis and for peak summer months. The DEIR should clarify whether the proposed projects will increase the capacity of the airport to accommodate additional passengers and/or aircraft. I note that the ENF was not entirely clear on whether the project components are necessary to support existing operations, including but not limited to achieving FAA design standards, or are proposed to meet projected demand and/or to promote increased passenger and aircraft activity. For example, the ENF proposed to increase parking spaces but did not identify the purpose of the increase or explain how that is consistent with data indicating there would be no increase in vehicle trips. The DEIR should clarify this issue for the various project components.

Alternatives Analysis

The objective of the MEPA review process is to avoid or minimize and mitigate Damage to the Environment to the greatest extent feasible. Consistent with that goal, an alternatives analysis is required to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment. The alternatives analysis should identify the project purpose and criteria for selecting the preferred alternative. A “No-Build” alternative must be evaluated for the purpose of establishing a future baseline in relation to which the project and its alternatives can be described and analyzed. The alternatives analysis should clearly describe and, to the extent possible, quantify the environmental impacts associated with each alternative and identify potential mitigation measures. The alternatives analysis and project narrative should support the selection of the Preferred Alternative and ensure that the project avoids, minimizes, and mitigates environmental impacts to the maximum extent feasible.

The ENF included a minimal Alternatives Analysis for each project that in most cases compared Build and No Build alternatives with respect to meeting project goals. For the Taxiway E, Transient Tie-down and Southeast Ramp Expansion projects, the ENF identified alternative configurations but did not comprehensively compare the environmental impacts of each alternative.

The DEIR should clearly identify the purpose of each project. According to the ENF, the runway rehabilitation and regrading projects have been designed consistent with FAA safety guidelines. The DEIR should describe the relevant guidelines and how the proposed design will achieve safety goals. For each of the runway projects, the DEIR should identify an alternative that minimizes impervious area and an alternative that minimizes direct impacts to rare species habitat, and evaluate these alternatives with respect to the FAA safety guidelines. For the Concrete Fuel Pad project, the DEIR should identify any alternative configurations or locations for the fuel pad that would avoid or minimize impacts to rare species habitat. For the Taxiway E, Transient Tie-down and Southeast Ramp Expansion projects, the DEIR should quantify the impacts of each alternative configuration shown in the ENF and identify and evaluate alternatives that minimize impervious area. The DEIR should evaluate an alternative in which either the Southwest Ramp or Southeast Ramp would be expanded, but not both.

The DEIR should provide alternative designs of the airport terminal expansion including an alternative that minimizes impervious area and an alternative that limits expansion to the space necessary to meet TSA and other administrative and operational needs. It should review alternatives for adding parking spaces, including scenarios with no new parking spaces and fewer spaces than proposed, and at least one alternative that significantly reduces new impervious area. The DEIR should review alternative locations for new hangars that minimize new land alteration and impervious area.

The DEIR should provide a detailed comparison of the alternatives, including more detailed descriptions and conceptual plans of each alternative. The DEIR should compare the environmental impacts of each alternative, quantitatively to the extent practicable, with respect to trip generation, parking supply, rare species habitat, water use, wastewater generation, impervious area and GHG emissions. The comparison should be provided in the narrative and in a tabular format.

Project Phasing

The ENF included a schedule for the construction of the nine projects in three phases. However, the Proponent has indicated that implementation of some of the projects will be determined based on demand. For the hangars, terminal expansion, vehicular parking, and airplane parking projects, the DEIR should identify thresholds, such as passenger and/or aircraft operation levels, that would prompt the implementation of those projects. With respect to the proposed expansion of the parking lots, the DEIR should describe a phased approach for incrementally constructing additional spaces as necessary.

Rare Species

Most of the project site is located within mapped rare species habitat and the airport currently operates under a CMP originally issued by NHESP in 2005 that includes requirements for management of rare species habitat at the airport. The projects will alter approximately 117 acres of rare species habitat. According to NHESP, together the projects will likely result in a Take of rare species pursuant to the Massachusetts Endangered Species Act (MESA) regulations at 321 CMR 10.00. In order to qualify for a CMP, the Proponent must demonstrate that the projects will avoid, minimize and mitigate impacts to rare species. The analysis must include: (1) an assessment of alternatives to temporary and permanent impacts to the species; (2) a demonstration that an insignificant portion of the local population will be impacted; and, (3) the development and implementation of a conservation and management plan that provides a long-term net benefit to the conservation of the local population of the impacted species. According to NHESP, it is anticipated that the projects will meet the MESA CMP performance standards by providing a long-term net benefit to the impacted species through protection of high-quality habitat and management of habitat.

The DEIR should provide an updated estimate of the area of rare species habitat altered by each project component. It should identify habitat areas that could be protected or managed to mitigate project impacts. The DEIR should review the existing CMP and describe previous or on-going habitat mitigation measures provided by the airport.

Traffic and Transportation

The project includes a significant expansion of vehicle parking lots that would increase the number of spaces from 549 to 918 spaces. The ENF did not identify any existing or proposed uses that would require an increase in the parking supply or a basis for the proposed increase in the parking supply. The DEIR should describe the existing layout and number of parking spaces. It should provide an analysis of the airport's year-round parking needs and identify any circumstances under which capacity may be exceeded by demand. The DEIR should explain how the proposed number of vehicle parking spaces was selected and compare the proposed number of spaces to parking supply rates published in the Institute of Transportation Engineers' (ITE) Parking Generation and as required by local zoning codes. As noted above, the DEIR should identify potential phasing and land banking of parking spaces so that new spaces are not constructed unless they are needed. According to the ENF, the project will not increase the number of vehicle trips to the airport. The DEIR should explain why an increase in vehicle trips is not anticipated, particularly if additional parking spaces are provided. If, based on further analysis, the Proponent determines that the project may generate a significant number of new vehicle trips, then the DEIR should provide a transportation analysis consistent with the EEA/MassDOT *Transportation Impact Assessment (TIA) Guidelines* issued in March 2014.

The DEIR should provide a comprehensive review of transit service to the airport provided by the Vineyard Transit Authority or other entities. It should identify any opportunities to expand transit service to the site or other measures that could minimize trips to the airport by single-occupancy vehicles.

The Proponent has indicated that under some conditions, vehicle queues may extend toward the terminal parking areas due to delays in making left turns onto Edgartown-West Tisbury Road from Airport Road. The project includes the addition of a right-turn lane at the airport exit to facilitate right-turns and reduce the length of the queue. The DEIR should provide a more detailed description of the design of the turning lane and additional information on the volume of vehicles exiting, the number of vehicles making left or right turns and the speed and traffic conditions on Edgartown-West Tisbury Road, including travel speed and interval between vehicles. The DEIR should evaluate the alternative airport access drives proposed by the Martha's Vineyard Commission, including a connection between the terminal area and the business park and a roundabout at the intersection of Airport Road at Edgartown-West Tisbury Road.

Climate Change

Governor Baker's Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth (EO 569; the Order) was issued on September 16, 2016. The Order recognizes the serious threat presented by climate change and directs agencies within the administration to develop and implement an integrated strategy that leverages state resources to combat climate change and prepare for its impacts. The Order seeks to ensure that Massachusetts will meet greenhouse gas (GHG) emissions reduction limits established under the Global Warming Solution Act of 2008 (GWSA) and will work to prepare state government and cities and towns for the impacts of climate change. Review of these issues through the GHG Policy and requirements to analyze the effects of climate change through EIR review is an important part of this statewide strategy. These analyses inform State Agencies and proponents'

understanding of a project's GHG emissions and a project's vulnerability to the effects of climate change.

Adaptation and Resiliency

Pursuant to the GWSA, MEPA review of projects subject to an EIR must consider the reasonably foreseeable climate change impacts and GHG emissions of projects subject to MEPA review (and effects such as predicted sea level rise); and (2) ensure that projects subject to MEPA take all feasible measures to avoid, minimize, or mitigate "Damage to the Environment" (as defined in the MEPA statute), including GHG emissions.

The region's climate is expected to experience higher temperatures and more frequent and intense storms. The Northeast Climate Science Center at the University of Massachusetts at Amherst has developed projections of changes in temperature, precipitation and sea level rise for Massachusetts. This data is available through the Climate Change Clearinghouse for the Commonwealth at www.resilientMA.org. By the end of the century, the average annual temperature on Martha's Vineyard is projected to rise by 3.0 to 9.1 degrees Fahrenheit (F), including an increase in the number of days with temperatures over 90 F from 4 to 31 days compared to the 1971-2000 baseline period. During the same time span, the average annual precipitation is projected to change by -0.7 to +4.9 inches.

The DEIR should discuss potential effects of climate change to the project site. Consistent with the requirements of the GWSA, the DEIR should review features of the designs of the projects that will increase the resiliency of the site to likely climate change impacts. I encourage the Proponent to consult the data available on the resilientMA.org website to develop climate change scenarios for the site and identify potential adaptation measures. EEA's *Climate Change Adaptation Report*² (September 2011) and the MVC's *Dukes County Multi-Jurisdiction Hazard Mitigation Plan Update*³ (October 2015) provide additional resources to assist in this analysis.

The DEIR should identify site elements that will be designed to minimize impacts associated with more frequent and intense storms and with extreme heat waves including, but not limited to:

- Ecosystem-based adaptation measures to reduce heat island effect and mitigate stormwater runoff, such as integration of tree canopy cover, rain gardens, and low impact development (LID) stormwater management techniques;
- Use of on-site renewable energy systems may provide added resiliency during periods of power loss during storms;
- Protection of emergency generator fuel supplies from effects of extreme weather and flood proofing; and

² Available online at <http://www.mass.gov/eea/docs/eea/energy/cca/eea-climate-adaptation-report.pdf>

³ Available online at <http://www.mvcommission.org/sites/default/files/Dukes%20County%20Multi-Jurisdictional%20Hazard%20Mitigation%20Plan%20Update%202015%20smaller%20file.pdf>

- Expansion of the size of emergency generators to allow for select common areas and other emergency and life safety systems to remain operational for a period of time beyond code requirements, specifically in residential buildings.

Greenhouse Gas Emissions

As stated previously, the project is subject to review under the GHG Policy. The DEIR should include an analysis of GHG emissions and mitigation measures in accordance with the standard requirements of the Policy, which requires projects to quantify carbon dioxide (CO₂) emissions and identify measures to avoid, minimize or mitigate these emissions. The analysis should quantify the direct and indirect CO₂ emissions for the project's energy use by buildings with conditioned spaces (stationary sources) and transportation-related emissions of vehicles travelling to and from the airport (mobile sources). Direct emissions include on-site stationary sources, which typically emit GHGs by burning fossil fuel for heat, hot water, steam and other processes. Indirect emissions result from the consumption of energy, such as electricity, that is generated off-site by burning of fossil fuels, and from emissions associated with vehicle use by employees, vendors, customers and others. The DEIR should identify and commit to mitigation measures to reduce GHG emissions.

Stationary sources

The DEIR should include an analysis that calculates and compares GHG emissions associated with: 1) a Base Case that conforms to the 9th Edition of the Massachusetts Building Code, which incorporates the standards of the International Energy Conservation Code (IECC 2015) and American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE 90.1 2013, plus amendments) and 2) a Mitigation Alternative that achieves greater reductions in GHG emissions. As requested by the Department of Energy Resources (DOER), the analysis should demonstrate that the project is taking all feasible measures to mitigate GHG impacts.

The GHG analysis should clearly demonstrate consistency with the objectives of MEPA review, one of which is to document the means by which Damage to the Environment can be avoided, minimized and mitigated to the maximum extent feasible. The DEIR should identify the model used to analyze GHG emissions, clearly state modeling assumptions, explicitly note which GHG reduction measures have been modeled, and identify whether certain building design or operational GHG reduction measures will be mandated by the Proponent to future occupants or merely encouraged for adoption and implementation. The DEIR should include the modeling printouts for each alternative and emission tables that compare base case emissions in tons per year (tpy) with the Preferred Alternative showing the anticipated reduction in tpy and percentage by emissions source (direct, indirect and transportation). Other tables and graphs, such as the table of mitigation measures recommended by DOER, may also be included to convey the GHG emissions and potential reductions associated with various mitigation measures as necessary. The DEIR should provide data and analysis in the format requested in DOER's letter.

The DEIR should present an evaluation of mitigation measures identified in DOER's comment letter. In particular, the feasibility of each of the mitigation measures outlined below should be assessed, and if feasible, GHG emissions reduction potential associated with major mitigation elements should be evaluated to assess the relative benefits of each measure. The

DEIR should explain, in reasonable detail, why certain measures that could provide significant GHG reductions were not selected – either because it is not applicable to the project or is deemed technically or financially infeasible. At a minimum, the DEIR should consider the following GHG mitigation measures:

- High-performing building envelope;
- Electric heat pump or variable refrigerant flow (VRF) space and service water heating systems;
- Passivehouse building design; and,
- Rooftop and/or ground-mounted solar photovoltaic (PV) systems including, at a minimum, solar-ready rooftops on the terminal and hangar buildings.

As noted by DOER, incorporating these measures into the building designs could reduce GHG emissions by 90 percent. The DEIR should include an analysis of utility company incentives, Alternative Energy Credits (AEC), and other incentives for energy-efficient building design and on-site renewable energy generation, and evaluate the applicability of the incentive programs to the project. I encourage the Proponent to consult with DOER prior to completing the GHG analysis.

The DEIR should note whether the project will seek certification by the Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, and if so, to what level. If applicable, the DEIR should identify specific measures that will be incorporated into the project design to achieve the LEED certification.

Mobile sources

If a Transportation Impact Assessment is prepared for the DEIR, the GHG analysis should also include an evaluation of potential GHG emissions associated with mobile emissions sources. The DEIR should follow the guidance provided in the GHG Policy for *Indirect Emissions from Transportation* to determine mobile emissions for Existing Conditions, Build Conditions, and Build Conditions with Mitigation. The Proponent should thoroughly explore means to reduce overall single occupancy vehicle trips. The DEIR should also review measures to promote the use of low-emissions vehicles, including installing electric vehicle charging stations and providing designated parking spaces for these vehicles. I encourage the Proponent to consider participating in MassEVolves, the Commonwealth's program for supporting the use of zero emissions vehicles; more information on this program is available at www.MassEVolves.org. The Build with Mitigation model should incorporate TDM measures and any roadway improvements implemented by the project, and document the reductions in GHG emissions associated with the mitigation.

Land Alteration

The projects will alter approximately 118 acres of land. In accordance with the GHG Policy, projects that alter over 50 acres of land are required to analyze the carbon loss associated with removal of trees and soil disturbance during the construction period and loss of carbon sequestration. The purpose of this analysis is to develop an *estimate*, not an exact accounting of GHG emissions associated with land. The DEIR should describe the methodology and data used

to develop the analysis, identify associated impacts on GHG emissions, and identify measures to avoid, minimize and mitigate impacts.

I encourage the Proponent to consult with EEA and MEPA on the development of this analysis. The Proponent may develop its own analysis or may consider a draft protocol developed by EEA land policy staff and the MEPA Office. The draft protocol includes: assumptions regarding current and proposed land uses, forest types, and soil types; assumptions regarding carbon sequestration of soils and trees; and the ability to consider a one-time loss of sequestration (e.g. tree clearing) as well as loss of potential sequestration over a certain time period. The draft protocol was used most recently to estimate GHG emissions associated with land alteration for the Norton Business Park (EEA # 15750) and Campanelli Business Park (EEA# 15830) projects.

Mitigation

The DEIR should include a commitment to provide a self-certification to the MEPA Office at the completion of the project. It should be signed by an appropriate professional (e.g. engineer, architect, transportation planner, general contractor) indicating that all of the GHG mitigation measures, or equivalent measures that are designed to collectively achieve identified reductions in stationary source GHG emission and transportation-related measures, have been incorporated into the project.

Hazardous Waste

The site is regulated under the M.G.L. c.21E and the Massachusetts Contingency Plan (MCP) regulations at 310 CMR 40.00 because releases of hazardous materials have occurred at the site. Release Tracking Numbers (RTN) 4-0012087 and 4-0016797 were assigned to releases of tetrachloroethylene (also known as perchloroethylene or PCE) associated with a former dry cleaning facility; according to the ENF, remediation of these releases have been completed. The presence of per- and poly-fluorinated alkyl substances (PFAS) has been documented at significant concentrations in 26 private drinking wells downgradient of the site (RTN 4-0027571). According to MassDEP, the source of the PFAS is believed to be the use of aqueous film-forming foam (AFFF) used for fire training purposes at the airport. Assessment of the full extent of this release and potential remediation measures is in its early stages and additional areas may be impacted by PFAS. The DEIR should provide an overview of the status of the assessment of the PFAS release and any planned or completed remedial actions undertaken pursuant to the MCP.

The projects include significant soil excavation associated with the terminal expansion, runway rehabilitation, side safety area, primary surface obstruction and fuel pad projects. MassDEP has recommended that the Proponent characterize the chemical properties of soil to be excavated. The DEIR should provide an estimate the volume of material to be excavated and identify the presence of soil and/or groundwater contaminants in the areas where excavation is proposed. It should estimate the volume of contaminated material, review testing, treatment and disposal options and identify construction-period mitigation measures to minimize impacts to public health and the environment associated with the excavation and handling of contaminated soil.

Stormwater

According to the ENF, the projects will increase impervious area by approximately 17 acres. The ENF included a commitment to provide a stormwater management system to treat and convey runoff from impervious surfaces. The DEIR should identify all measures that will be employed to protect the water quality of the sole source aquifer, provide a description of the proposed stormwater management system and identify Best Management Practices (BMP) that will be incorporated into its design. I encourage the Proponent to include Low Impact Design (LID) techniques such as rain gardens in the site design. The DEIR should identify any infiltration systems that may require registration under MassDEP's Underground Injection Control (UIC) program. It should review any applicable NPDES performance standards related to discharges of pollutants from airplane deicing operations.

Water and Wastewater

The projects will result in an increase in water use of 1,750 gpd and an additional 1,400 gpd of wastewater. The DEIR should describe the existing and proposed drinking water and wastewater facilities and review any capacity constraints. According to MassDEP, the Oak Bluffs Water District, which supplies drinking water to the site, has in recent years withdrawn close to or more than its authorized volume of 0.93 million gpd and will likely require a new Water Management Act permit from MassDEP to address its projected future demand. The DEIR should identify opportunities for water conservation at the airport, including water conserving plumbing and reuse of rainwater and greywater for irrigation.

Cultural Resources

The airport is included in the Inventory of Historic and Archaeological Assets of the Commonwealth and MHC has requested that an archaeological reconnaissance survey be conducted to identify any additional investigations or mitigation measures that may be necessary to avoid or minimize impacts to significant historical or archaeological resources. The DEIR should provide a summary of the results of any cultural resource surveys and report on its consultation with MHC.

Construction

The DEIR should identify construction-period impacts and mitigation relative to rare species, noise, air quality, water quality, and traffic. It should describe truck routes and other mitigation measures that may be implemented to minimize impacts to residential areas by trucks travelling to the site during the construction period. Construction equipment should use engines meeting Tier 4 federal emissions standards, or if unavailable, confirm that the project will require its construction contractors to use Ultra Low Sulfur Diesel fuel, and discuss the use of after-engine emissions controls, such as oxidation catalysts or diesel particulate filters. More information regarding construction-period diesel emission mitigation may be found on MassDEP's web site at <https://www.mass.gov/guides/reducing-air-emissions-from-diesel-construction-engines>.

The DEIR should provide detailed information regarding the project's generation, handling, recycling, and disposal of construction and demolition debris (C&D) and identify

measures to reduce solid waste generated by the project. I strongly encourage the Proponent to incorporate C&D recycling activities as a sustainable measure for the project. The DEIR should note whether asbestos-containing material is present in any buildings to be demolished and identify appropriate reporting, handling and disposal procedures. I refer the Proponent to the comprehensive review of construction-period regulatory requirements in MassDEP's letter. The DEIR should describe how the project will comply with all applicable requirements.

Mitigation and Draft Section 61 Findings

The DEIR should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each permit to be issued by State Agencies. The DEIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation. The DEIR should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing, either tying mitigation commitments to overall project square footage/phase or environmental impact thresholds, to ensure that adequate measures are in place to mitigate impacts associated with each development phase.

Responses to Comments

The DEIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the DEIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the DEIR beyond what has been expressly identified in this certificate.

Circulation

The Proponent should circulate the DEIR to those parties who commented on the ENF, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations. Per 301 CMR 11.16(5), the Proponent may circulate copies of the EIR to commenters in CD-ROM format or by directing commenters to a project website address. However, the Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Proponent should send correspondence accompanying the CD-ROM or website address indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. The DEIR submitted to the MEPA office should include a digital copy of the complete document. A copy of the DEIR should be made available for review at the Edgartown and West Tisbury public libraries.

February 22, 2019

Date



Matthew A. Beaton

Comments received:

01/11/2019	Tony Horwitz
01/11/2019	Holly Hodder Eger
01/11/2019	John Freedman
01/11/2019	Miranda Edison
01/11/2019	Geraldine Brooks
01/12/2019	Robert Richheimer
01/12/2019	Marilyn Feinberg
01/12/2019	Jeffrey Agnoli
01/12/2019	Zeev Pearl
01/12/2019	Angela Andersen
01/12/2019	K. Gardner
01/13/2019	Klaus D. Vogt
01/13/2019	May Baldwin
01/13/2019	Jason Balaban
01/13/2019	Barbara Kassel
01/14/2019	Paul Bailey
01/14/2019	Dana Parkhill-Day
01/14/2019	Matthew Sudarsky
01/14/2019	Robert Heubscher
01/15/2019	Skip Richheimer
01/15/2019	Salem Mekuria
01/16/2019	Petra Lent McCarron
01/16/2019	Cindy Kane
01/17/2019	Oliver Becker
01/18/2019	Wesley Brown
01/18/2019	Elisabeth Carnie, Odin Robinson and Runar Finn Robinson
01/20/2019	Edward A. Gargan
01/24/2019	Nicole Galland
01/26/2019	Thomas Hodgson
01/26/2019	Valerie and John Becker
01/30/2019	Benjamin Lambert Hall, Jr.
01/31/2019	Vineyard Conservation Society
02/02/2019	Nathaniel Brooks Horwitz
02/05/2019	Beatrice Nessen
02/07/2019	Susan B. Murphy
02/07/2019	Massachusetts Historical Commission (MHC)
02/11/2019	Linda DeWitt
02/11/2019	Robert M. Green
02/12/2019	Massachusetts Department of Environmental Protection (MassDEP)/Southeast Regional Office (SERO)
02/12/2019	Natural Heritage and Endangered Species Program (NHESP)
02/12/2019	Martha's Vineyard Commission (MVC)
02/12/2019	Massachusetts Department of Transportation (MassDOT)
02/12/2019	West Tisbury Conservation Commission
02/12/2019	MassAudubon

02/12/2019 BiodiversityWorks

02/12/2019 Hunter Moorman

02/15/2019 Massachusetts Department of Energy Resources (DOER)

MAB/AJS/ajs

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX A-2

MEPA Certificate and Comments on the
Draft Environmental Impact Report



The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Charles D. Baker
GOVERNOR

Karyn E. Polito
LIEUTENANT GOVERNOR

Kathleen A. Theoharides
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1081
<http://www.mass.gov/eea>

March 12, 2021

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
NOTICE OF PROJECT CHANGE/DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Martha's Vineyard Airport Proposed Capital
Improvement Plan Projects
PROJECT MUNICIPALITY : Edgartown and West Tisbury
PROJECT WATERSHED : Islands
EEA NUMBER : 15964
PROJECT PROPONENT : Martha's Vineyard Airport Commission
DATE NOTICED IN MONITOR : January 22, 2021

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62I) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Notice of Project Change (NPC)/Draft Environmental Impact Report (DEIR) and hereby determine that it **adequately and properly complies** with MEPA and its implementing regulations. The Proponent may prepare and submit for review a Final Environmental Impact Report (FEIR).

Project Description

As described in the NPC/DEIR, the Proponent has identified a set of capital improvement projects for implementation at the Martha's Vineyard Airport (Airport) to improve safety and security operations and generate revenue to support Airport operations and maintenance. The projects and construction year are as follows:

1. Construction of two new hangars (2022);
2. Paving the fuel farm area and access road (2022);
3. Manage vegetation affecting the airspace of Runway 6-24 (2023);
4. Reconstruction of Runway 15-33 (2023);
5. Realignment of the ends of Taxiway E (2023);
6. Expansion of the Terminal building by approximately 9,000 square feet (sf) (2028),
7. Expansion of aircraft parking areas (2029); and,
8. Construction of a right turn lane on the airport access road for exiting vehicles (2030);

According to the NPC/DEIR, the majority of these projects were identified in the Capital Improvement Plan (CIP) included in the Airport's 2016 Master Plan Update. The runway, taxiway, aircraft parking and Terminal projects are proposed to meet Federal Aviation Administration (FAA) safety guidelines, replace airplane parking space lost to runway safety requirements and improve the passenger and luggage security screening process.

In addition, the NPC/DEIR described the development of two parcels in the Airport Business Park which have not undergone MEPA review or been permitted by the Natural Heritage and Endangered Species Program (NHESP) pursuant to the Massachusetts Endangered Species Act (MESA). Revenue from the leasing of these sites will generate revenue for the Airport, but the buildings are not related to operation of the Airport and were not identified in the CIP; they were included in the NPC/DEIR to provide transparency, provide a cumulative impact assessment, and to address anti-segmentation provisions in the MEPA regulations. A building on one of the parcels was constructed five years ago and is in light industrial/warehouse use. Another light industrial/warehouse building is under construction on the second parcel.

Changes Since the Filing of the ENF

The Airport filed an ENF in 2019 which described proposed projects at a conceptual level and identified potential activities that could be necessary in the future, including construction of over 500 new parking spaces. Many residents submitted comments on the ENF expressing concern that the projects were intended to expand Airport operations to accommodate an increased number of flights and passengers. The NPC/DEIR included background information on the existing and projected level of Airport operations and articulated the purpose and need for each of the proposed projects. The NPC/DEIR clarified that the intent of the projects is to improve Airport safety and operations, in addition to providing revenue from rental income, and included an updated list of proposed projects that in many cases have been revised or redesigned since the ENF was submitted to further avoid and minimize environmental impacts. The land alteration, impervious area and impacts to Priority Habitat estimated in the ENF were based on conceptual designs and are therefore not comparable to those presented in the NPC/DEIR which were updated based on refined designs. Changes to the project include:

- The number of proposed new parking spaces has decreased from 549 to 39;
- Regrading of side safety areas adjacent to Runway 6-24 is no longer proposed;
- The Taxiway E reconfiguration has been redesigned to include changes to the ends of the taxiway where they meet adjacent runways rather than the realignment of the entire taxiway as previously proposed in the ENF;
- New airplane parking spaces will be provided by expanding the Southwest Ramp and reconstructing the Southeast Ramp area. The expansion of the Southeast Ramp and paving of vegetated areas used for airplane tie-downs are no longer proposed;
- Clearing of 23 acres of trees has been proposed to clear airspace obstructions at the ends of Runway 6-24. Five acres of tree clearing will be on Airport property, 14.8 acres will be within an existing easement in the adjacent Manuel F. Correllus State Forest and 3.2 acres of clearing will be within the state forest and will require a new easement. Legislation is required for the new easement because it involves the conversion of

parkland protected under Article 97 of the Amendments to the Constitution of the Commonwealth (Article 97); and,

- The NPC/DEIR identified two lots for development within the Airport's Business Park. One of the lots has already been developed and the other is under construction.

Project Site

The project site covers an area of 688 acres in West Tisbury and Edgartown. It includes the Airport with associated runways, buildings, structures, and parking lots, and a business park on the eastern side of the site. The project site is generally bounded by Edgartown-West Tisbury Road to the south, and Airport Road to the east. Undeveloped wooded land, including the Department of Conservation and Recreation's (DCR) Manuel F. Correllus State Forest (State Forest), borders the site to the west and north. The area south of Edgartown-West Tisbury Road is comprised primarily of residential uses.

The Airport provides general aviation (GA) and passenger airline services. It averaged 51,151 flights per year between 2000 and 2013, with 47 percent of all flights occurring during the peak summer season (June-August). The Airport includes two paved runways. The primary runway, Runway 6-24, is aligned northeast-southwest and is 5,504 ft long by 150 ft wide. It has been designed in accordance with Airport Reference Code (ARF) C-III to accommodate approach speeds of 121-140 knots and airplanes with wingspans of 79-117 feet. This runway is equipped with a precision Instrument Landing System (ILS). Runway 15-33 is oriented northwest-southeast and is 3,328 ft long and 75 ft wide. It has been designed to accommodate approach speeds of 91-120 knots and airplanes with wingspans of 49-78 feet (ARF B-II). Six paved taxiways (designated A, A1, B, C, D and E) provide access between the runways and airplane parking areas, which are known as aprons or ramps. Taxiway A is located south of, and runs parallel to, Runway 6-24 and is connected to the runway by Taxiways A1, B, C and D. Taxiway E runs diagonally between Runway 15-33 and Runway 6-24. The fuel pad, ramps and aprons, hangars and terminal are located south-southeast of Taxiway A.

With the exception of the developed areas around the terminal and business park, the site is located within Priority Habitat and Estimated Habitat of rare species as mapped in the 14th Edition of the *Natural Heritage Atlas*. The site contains habitats that support 30 state-listed rare species, including 22 species of invertebrates, five plant species and three bird species. The Airport is included in the Inventory of Historic and Archaeological Assets of the Commonwealth (MHC #WTI.HA.21) because of its former use as a military airfield. According to the Massachusetts Historical Commission (MHC), the proposed projects are unlikely to affect significant historical or archaeological resources.

Environmental Impacts and Mitigation

Potential environmental impacts of the projects include alteration of over 50 acres of existing paved areas; new alteration of 17.8 acres of land, including 14.8 acres of Priority Habitat; cutting 23 acres of trees, including 14.8 acres within an existing easement in the State Forest and 3.2 acres in a proposed easement in the state forest; an increase in water use from 13,369 gallons per day (gpd) to 15,119 gpd; and an increase in wastewater generation from 10,695 gpd to 12,095 gpd. The new and expanded buildings will generate Greenhouse Gas

(GHG) emissions associated with the burning of fossil fuels for on-site energy use and automobile travel by employees and visitors to the site.

The measures proposed in the NPC/DEIR to minimize and mitigate impacts include removing 3.8 acres of pavement, including 1.9 acres in Priority Habitat; management of vegetation within the tree clearing areas to provide shrub and grassland habitat for rare species; construction of a stormwater management system with Best Management Practices (BMPs) to improve water quality, reduce flow rates and infiltrate runoff; and construction-period measures to minimize noise, air and water quality impacts. The project will mitigate GHG emissions by incorporating energy efficiency measures into the new and expanded buildings. The Proponent may be required to provide additional compensation and mitigation in connection with the proposed easements in the State Forest.

Permitting and Jurisdiction

The group of projects is undergoing MEPA review and is subject to preparation of a mandatory EIR pursuant to 301 CMR 11.03(1)(a)(1) and 11.03(1)(a)(2) because it requires State Agency Actions and will result in direct alteration of 50 or more acres of land. It also exceeds ENF thresholds at 11.03(2)(b)(2) (greater than two acres of disturbance of designated priority habitat). The project requires a Vehicular Access Permit from the Massachusetts Department of Transportation (MassDOT), a Construction Access Permit from DCR, a Conservation and Management Permit (CMP) from NHESP and may require Federal Consistency review by the Massachusetts Office of Coastal Zone Management (CZM). It is subject to the MEPA GHG Emissions Policy and Protocol.

The project requires Development of Regional Impact Review by the Martha's Vineyard Commission (MVC). It will require the preparation and review of an Environmental Assessment under the National Environmental Policy Act (NEPA) and a National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit from the United States Environmental Protection Agency (EPA).

The Proponent has received Financial Assistance from the Commonwealth through MassDOT and may seek additional funding. In addition, the project requires a Land Transfer from DCR in the form of an easement in the State Forest. Therefore, MEPA jurisdiction is broad and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment, as defined in the MEPA regulations.

Review of the NPC/DEIR

The NPC/DEIR was generally responsive to the Scope included in the ENF Certificate. It provided an overview of the Airport's operations and reviewed trends in passenger volumes and usage by aircraft type. The NPC/DEIR included detailed descriptions and plans of the proposed capital improvement projects, described potential environmental impacts, identified mitigation measures and reviewed alternatives for each project. It provided a response to comments received on the ENF and draft Section 61 Findings.

Alternatives Analysis

For each project, the NPC/DEIR compared the environmental impacts of the Preferred Alternative to those of an alternative design. Where relevant, the NPC/DEIR reviewed applicable FAA guidelines and evaluated how each alternative addressed the guidelines. An analysis of alternative designs for the Airport access road improvement project are described in the Traffic and Transportation section below.

Construction of Two New Hangars

According to the NPC/DEIR, the Airport does not have adequate hangar space to meet demand. The No Build Alternative will result in the continued storage of aircraft outdoors and the use of deicing agents to prepare the airplanes for flight. The Preferred Alternative includes the construction of hangars of 9,200 sf and 15,234 sf and a parking lot with 25 parking spaces adjacent to the Southeast Ramp and the business park. The Preferred Alternative will add approximately 1.04 acres of impervious area, including one acre within Priority Habitat, and temporarily impact 0.8 acres of vegetated land, including 0.7 acres within Priority habitat. According to the ENF, the Preferred Alternative will generate income that will be used to maintain the Airport and meet demand for hangar space. Mitigation for impacts to Priority Habitat will be identified in the CMP.

Paving the Fuel Farm and Access Road

The Airport's fuel farm is located at the southern end of the site and contains three 20,000-gallon tanks for storage of jet fuel and airplane fuel within a fenced area. The fuel farm and access road are unpaved and consist of a crushed asphalt surface. According to the NPC/DEIR, the crushed asphalt from these areas are a potential source of foreign object debris (FOD) on the ramps and may cause damage to aircraft. The Preferred Alternative will pave the fuel farm and access road, which will require temporary regrading of approximately 0.1 acres of vegetated land within Priority Habitat and 0.1 acres outside of Priority Habitat. The project also includes drainage improvements within the fuel farm, including a new oil-water separator that meets the SMS requirements for land uses with higher potential pollutant loads (LHUPPL) and hooded, deep-sump catch basins.

Manage Vegetation Affecting the Airspace of Runway 6-24

Vertical obstructions, including trees or structures of sufficient height, within runway approaches pose safety hazards to aircraft landing at the Airport. According to the NPC/DEIR, FAA guidelines require that airspace be clear of obstructions; a non-conforming condition may result in restrictions being placed on the use of the runway. Surveys of runway airspace conducted by the Airport in 2020 identified trees that obstruct the airspace at both ends of Runway 6-24. According to the NPC/DEIR, Part 77 of the Federal Aviation Regulations (FAR) includes provisions regulating objects affecting runway approach and departure airspace. The Remove Vegetation from Part 77 Approach Surfaces Alternative would require vegetation management on over 46 acres of land to clear obstructions from both approach and departure airspace associated with Runway 6-24. The Preferred Alternative minimizes the amount of tree cutting by clearing only obstructions within the approach airspace of the runway, which is permitted by FAA design guidelines based on the specific characteristics of the runway and type

of aircraft that use it. The Preferred Alternative includes cutting 23 acres of trees, including 3.7 acres at the Runway 6 end and 19.3 acres at the Runway 24 end. Approximately 18 acres of tree clearing is proposed on land within the State Forest, including 14.8 acres within an easement granted to the Airport for maintenance of airspace and 3.2 acres outside of the easement; as noted previously, Article 97 legislation is required to expand the easement by 3.2 acres. Five acres of the 23 acres to be cleared of trees are located on Airport property. Approximately 22.5 acres of tree clearing will occur within Priority habitat.

Reconstruction of Runway 15-33

According to the NPC/DEIR, the surface of Runway 15-33 has deteriorated and poses a safety concern to aircraft, and the existing 37.5-ft paved shoulders on either side of the runway are disintegrating and causing FOD to migrate onto the runway. In addition, the Airport's survey of airspace in 2020 identified trees to be removed from an area of approximately 17.7 acres, including 7.7 acres located within the State Forest, to clear obstructed airspace at each end of the runway.

The Maintain Existing Thresholds Alternative would reconstruct the runway, remove the paved shoulders along both sides of the runway and clear all trees obstructing the airspace. This alternative would remove six acres of impervious area, but would require a new 7.7-acre easement within the State Forest for vegetation management. The Raise the Runway Profile Alternative would remove the paved shoulders along both sides of the runway and, in addition to reconstructing the runway surface, would raise the Runway 15 end by approximately 14 ft. The increased profile of the runway would change the runway approach airspace such that no tree clearing in the State Forest would be required. This alternative would remove six acres of impervious area and avoid impacts to the State Forest; however, raising the runway would require placement of 130,000 cubic yards (cy) of fill and disturbance of 17.1 acres of Priority Habitat.

The NPC/DEIR reviewed two additional alternatives that would avoid tree clearing in the State Forest by reconstructing the runway, removing the shoulders and either extending the Runway 33 end by 275 ft or shifting the entire runway to the south by 275 ft. These alternatives were not selected because they would increase impacts to Priority Habitat.

The Preferred Alternative avoids the need for tree removal in the State Forest by reconstructing the runway approximately 275 ft shorter than its current length so that it will have different airspace requirements than the existing runway; this alternative is feasible for Runway 15-33 because it is the secondary runway and is generally used by smaller aircraft. The Preferred Alternative includes the removal the runway shoulders, which will result in an increase of six areas of vegetated land, all of which is located in Priority Habitat.

Realignment of the ends of Taxiway E

Taxiway E runs diagonally between a point approximately 600 ft south of the Runway 15 end of Runway 15-33 and a point approximately 700 ft east of the Runway 6 end of Runway 6-24. It provides access to the Runway 15 end for aircraft taking off from the runway in a southerly direction. Access between the Airport ramps and the southern (Runway 6) end of Taxiway E is provided by stub Taxiway D. Because Taxiway E ends south of the Runway 15 end of Runway

15-33, airplanes using the Runway 15 end must first travel north on the runway to get into position for taking off. This condition poses a safety risk because it increases the potential for conflict between aircraft using the runway.

The NPC/DEIR reviewed several slight variations of an alternative that would remove the existing Taxiway E and reconstruct it parallel to Runway 15-33 with direct connections to each end of the runway. This alternative would result in a decrease of approximately three acres of impervious area, but would have temporary impacts to over 16 acres of Priority Habitat. The Preferred Alternative will leave most of Taxiway E in its current configuration, but reconfigure the northern end of the taxiway so that it is parallel to Runway 15-33 and connects to the Runway 15 end. The southern end of taxiway will be reconstructed so that it intersects Runway 6-24 at a perpendicular angle to improve visibility for pilots on the taxiway. The Preferred Alternative will not decrease impervious area, but will minimize temporary impacts to Priority Habitat.

Expansion of the Terminal Building

The existing 13,000-sf Airport Terminal was constructed in 1999. According to the NPC/DEIR, the terminal building was not designed to accommodate passenger security and baggage screening procedures and does not have adequate space to accommodate waiting passengers and baggage claim facilities. The number of passengers using the Airport has not changed appreciably on an annual basis, but a greater number of passengers are arriving and departing at the same time due to larger airplanes serving the Airport. Under existing conditions, the seasonal increase in the number of passengers is accommodated by temporary tents installed at the rear of the building.

The NPC/DEIR evaluated alternative designs for improving the Terminal Building. The alternatives differed with respect to the relative the size of the expansion, but in each case the expansion would occur within existing paved areas and would not increase the capacity of the Airport to attract more passengers or flights. The Preferred Alternative includes a 9,000-sf addition to the rear of the existing Terminal building that will provide needed space for security, baggage claim, passenger waiting areas and other Airport operations.

Expansion of Aircraft Parking Areas

The Airport has four ramps where aircraft can be parked. In 2016, the Airport's Master Plan estimated that the ramps provided a combined area of 671,440 sf of useable space for aircraft parking. Since that time, approximately 158,000 sf of useable ramp space has been lost as a result of changes to taxiways, a fire lane and added security space. The NPC/DEIR evaluated three locations at the Airport where aircraft parking space could be provided. The Pave Transient Turf Tie-Down Area Alternative was proposed in the ENF and would add up to 40 spaces by paving a grassed area adjacent to the Runway 6 end of Runway 6-24. This alternative would add up to 5.1 acres of impervious area in Priority Habitat; however, this area could only accommodate smaller aircraft.

The Preferred Alternative will provide 47 aircraft parking spaces, including 33 that will be large enough to accommodate larger aircraft. Fourteen spaces for smaller aircraft will be provided on the existing paved Southeast Ramp. The addition of spaces at this location will be

made possible by constructing a new stub taxiway to the ramp that will allow for aircraft to maneuver around parked airplanes. In addition, 33 spaces for larger aircraft will be provided by removing four buildings from the Southwest Ramp and reconfiguring and expanding the paved area. A vehicle parking lot with 56 spaces will be constructed to replace 70 vehicle parking spaces currently located in this area. The Preferred Alternative will add 1.8 acres of impervious area, including 2.2 acres of new impervious area at the Southwest Ramp and the removal of 0.4 acres of impervious area within Priority Habitat at the Southeast Ramp. A total of 0.5 acres of land will be temporarily disturbed, including 0.3 acres within Priority Habitat.

Rare Species

Most of the land area at the Airport is located within Priority Habitat for rare species. The projects described in the NPC/DEIR will cumulatively alter 54 acres of Priority Habitat, including temporary impacts to 11.4 acres of vegetated land which will be regraded and restored as habitat and 32 acres of habitat that will be impacted by vegetation management. The project will convert 3.4 acres of vegetated habitat to impervious area and restore 7.2 acres of impervious area to vegetated habitat for a net reduction of 3.8 acres of impervious area within Priority Habitat. As noted earlier, regrading the Runway 6-24 Side Safety Areas has been eliminated from the project and this project change will avoid impacts to over 26 acres of Priority Habitat. According to the NPC/DEIR, most of the rare animal and plant species present at the site rely on native grassland and shrub habitat. The Proponent has proposed to maintain the areas where trees will be removed as grassland and shrubland habitat that will benefit rare species, in a manner similar to that which the Airport currently maintains under its existing CMP. Comments from NHESP concur that the proposed vegetation management plan has the potential to enhance habitat for rare species.

The Airport is subject to a CMP (# 004-039.DFW) issued by NHESP in 2004. According to NHESP, the projects described in the NPC/DEIR are anticipated to result in a Take of state-listed species and a new CMP will be required. In order to qualify for a CMP, the Proponent must demonstrate that the projects will avoid, minimize and mitigate impacts to rare species. The analysis must include: (1) an assessment of alternatives to temporary and permanent impacts to the species; (2) a demonstration that an insignificant portion of the local population will be impacted; and, (3) the development and implementation of a conservation and management plan that provides a long-term net benefit to the conservation of the local population of the impacted species. According to NHESP, it is anticipated that the projects will meet the CMP performance standards by providing a long-term net benefit to the impacted species through protection of high-quality habitat and management of habitat, including the grassland and shrubland to be created in the tree removal area, habitat management and/or conservation and research funding. The FEIR should provide an updated analysis of impacts to rare species habitat and commitments to potential mitigation measures, including construction-period measures.

Article 97

Tree cutting and vegetation management associated with clearing airspace obstructions will take place on 18 acres of land within DCR's State Forest, of which 14.8 acres are located within an existing easement the Airport holds for vegetation management. A new easement on an additional 3.2 acres of land will be required for the tree clearing proposed in the NPC/DEIR. The

FEIR should provide updated information regarding the extent of project activities affecting the State Forest, including the area of activity within existing and proposed easements.

The NPC/DEIR acknowledged that the proposed easements require the need for legislative approval in accordance with Article 97. It provided an analysis of the proposed easements consistent with the Article 97 Policy but did not fully address all criteria specified in the Policy, as detailed below. The EEA Article 97 Policy identifies six criteria for determining when “exceptional circumstances” exist such that a disposition of Article 97 land may be appropriate.

- *The Proponent of the disposition must conduct an analysis of alternatives, commensurate with the type and size of the proposed disposition, that achieve the purpose of the disposition without the use of Article 97 land, such as the use of other land available within the appropriate market area.*

As described above, the Proponent evaluated alternatives for altering runway approach airspace requirements for Runways 6-24 and 15-33. Alternative configurations of Runway 6-24 that would avoid tree clearing in the state forest outside of the existing easement would result in additional impacts to rare species habitat, including new impervious area. The Airport has proposed to limit the extent of clearing for Runway 6-24 to the minimum extent recommended by FAA guidance. The Airport has selected an alternative for Runway 15-33 that avoids the need for any tree clearing outside of the existing easement.

- *The disposition of the subject parcel and its proposed use may not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation).*

No permanent structures will be located within the proposed easement. The vegetation management will impact rare species habitat; however, the trees will be replaced with native grassland and shrubland that is more beneficial to rare species than the existing forested land.

- *The minimum necessary area of Article 97 land should be included in the disposition and the existing resources continue to be protected to the maximum extent possible.*

The Proponent has selected project designs that will avoid the need for a new easement for tree clearing at the ends of Runway 15-33 and minimize the area of new easement needed at the ends of Runway 6-24. The project will not require placement of new permanent structures within the new easement and will restore rare species habitat. The FEIR should confirm that the proposed easements and will not restrict public use of the state forest.

- *The disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies and mandates of EEA and its appropriate department or division,*

The new easement is necessary to ensure safe conditions for aircraft landing at the Airport. The trees to be removed include species that do not provide habitat for rare species present in the area and will be replaced by native shrub and grassland habitat.

The NPC/DEIR did not the following two criteria; these should be addressed in an updated Article 97 analysis in the FEIR.

- *Real estate of equal or greater value, and of significantly greater resource value is granted to the disposing agency;* C-2
- *The disposition is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests to the Commonwealth.* C-3

Comments from DCR indicate that the agency supports the requested 3.2-acre easement for public safety reasons. The areas from which trees have been cut should be managed to provide native habitat in accordance with the following recommendations provided by DCR:

- Remove all evergreens;
- Selectively remove oak trees (retain larger trees to the extent they will not obstruct airspace);
- Avoid impacts to understory during tree-cutting activities;
- Preserve scrub oak, particularly larger and/or multi-stemmed clumps, to the maximum extent possible; and,
- Implement an invasive species management plan.

According to DCR, a Construction and Access Permit would typically be issued after Article 97 legislation authorizing the conveyance of the easement has been enacted and the land disposition finalized; however, DCR may consider issuing a Permit after the legislation is enacted and a CMP granted by NHESP but before the transfer of the easement is finalized and recorded.

Traffic and Transportation

The Scope for the NPC/DEIR required an evaluation of transportation impacts associated with construction of 549 parking spaces proposed in the ENF and potential increases in the number of passengers using the Airport as a result of the Terminal expansion and other projects. As noted above, the number of new parking spaces has been reduced to 39 and the NPC/DEIR clarified that the proposed projects will not contribute to increased use of the Airport.

According to the NPC/DEIR, the Airport Road includes one lane at the intersection that accommodates vehicles turning onto West Tisbury-Edgartown Road in either direction. Vehicles attempting to make a left turn from Airport Road onto eastbound West Tisbury Road-Edgartown Road experience delays under peak conditions that cause queuing on Airport Road exceeding 300 ft. The NPC/DEIR evaluated three alternatives for improving traffic operations for vehicles exiting the Airport, including constructing a roundabout at the Airport Road/West Tisbury-Edgartown Road intersection, constructing a connector road between Airport Road and Barnes Road and adding a right-turn lane on Airport Road. All of the alternatives would improve traffic

operations and reduce delays for traffic exiting the Airport, but differ with respect to cost and environmental impacts. According to the NPC/DEIR, the Roundabout Alternative would result in the most significant improvement in traffic operations, but is the most expensive of the alternatives to construct and would impact 0.2 acres of Priority Habitat. The Connector Road Alternative would pave an existing gravel road that connects Airport Road and Barnes Road, which is located along the eastern boundary of the Airport Road and intersects West Tisbury-Edgartown Road east of Airport Road. This alternative would decrease congestion at the Airport Road/West Tisbury-Edgartown Road intersection by diverting some of vehicles to the Barnes Road/ West Tisbury-Edgartown Road intersection; however, it would impact one acre of Priority Habitat and add one acre of impervious area. The Preferred Alternative will construct a southbound right-turn lane on Airport Road that will improve traffic operations at the intersection by providing additional storage for vehicles queuing at the Airport's exit and minimizing backups on Airport Road. The Preferred Alternative avoids impacts to Priority Habitat.

According to the NPC/DEIR, the Airport encourages passengers to use bus service provided by the Martha's Vineyard Transit Authority. The FEIR should provide a description of bus service to the Airport and describe measures undertaken by the Airport to encourage bus ridership and minimize single-occupant vehicle (SOV) trips.

C-4

Stormwater Management

The projects will result in an overall decrease of 3.8 acres of impervious area. According to the NPC/DEIR, stormwater management measures to be implemented include:

- Hangar buildings: one detention basin for each building;
- Runway 15-33 and Taxiway: deep-sump hooded catch basins, vegetated filter strips and a total of six subsurface infiltration systems;
- Airport Road site entrance: deep-sump, hooded catch basins, a water quality swale, and a subsurface infiltration system;
- Southeast and Southwest Ramps: deep-sump, hooded catch basins, sand filters and subsurface infiltration systems; and
- Fuel Farm: a new oil-water separator with a larger capacity.

According to the NPC/DEIR, the proposed stormwater management measures will meet MassDEP's Stormwater management Standards (SMS) and protect the sole-source aquifer; however, the NPC/DEIR did not include any analysis in support of these conclusions. As noted by the EPA, additional information regarding groundwater conditions should be provided to assess the proposed water quality measures. The NPC/DEIR did not identify the storm conditions for which the stormwater management systems were designed; as described below, the FEIR should evaluate designs of the stormwater management system that can accommodate increased precipitation and higher-intensity storm events projected under future climate conditions.

C-5

C-6

Solid and Hazardous Waste

As noted in the NPC/DEIR, the site is regulated under the M.G.L. c.21E and the Massachusetts Contingency Plan (MCP) regulations at 310 CMR 40.00 because releases of

hazardous materials have occurred at the site. Release Tracking Number (RTN) 4--0027571 has been assigned to a reported release of per- and poly-fluorinated alkyl substances (PFAS) that has affected private drinking wells downgradient of the site. The elevated PFAS concentrations are believed to be the use of aqueous film-forming foam (AFFF) used for fire training purposes at the Airport. The ENF Certificate acknowledged that the assessment of the full extent of this release and potential remediation measures was in its early stages, and required the DEIR to provide an update on the status of the assessment of the PFAS release, including areas impacted by PFAS, and any planned or completed remedial actions undertaken pursuant to the MCP. The NPC/DEIR included minimal information about the status of the Airport's PFAS investigations and provided a link to a series of reports filed by the Airport's Licensed Site Professional (LSP). Additional information on the status of the PFAS assessment is required in the Scope for the FEIR.

C-7

According to the NPC/DEIR, the projects will include the excavation of approximately 14,300 cubic yards (cy) of material, of which over 10,000 cy will be excavated in connection with the Runway 15-33 and Taxiway E projects. The NPC/DEIR not indicate whether any of the soil will be excavated from areas impacted by PFAS and require special handling and disposal procedures. This information should be provided in the FEIR.

C-8

Climate Change

Adaptation and Resiliency

The Scope for the NPC/DEIR included in the ENF Certificate required an analysis of the potential effects of climate change to the project site. According to the NPC/DEIR, drainage and flooding patterns are not anticipated to change because the project will reduce impervious area and is not located in a floodplain. The FEIR should provide a comprehensive assessment of climate change impacts to the Airport and identify potential resiliency measures.

C-9

Greenhouse Gas Emissions

The NPC/DEIR provided an analysis of GHG emissions and potential mitigation measures associated with the proposed expansion of the Terminal building, construction of two new hangar buildings, and tree clearing.

Stationary sources

The NPC/DEIR provided a comprehensive review of potential energy efficiency measures that could be incorporated into the design of the Terminal expansion and proposed hangar buildings and estimated the associated reductions in GHG emissions. The stationary source GHG analysis evaluated CO₂ emissions for the Base Case and the Design Case. The Base Case for was designed to meet the minimum energy requirements of the 9th Edition of the Massachusetts Building Code, which references the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2013. The Design Case included additional energy-efficiency measures proposed in the Preferred Alternative. The GHG analysis used eQuest modeling software to quantify emissions from the project's stationary sources. Stationary source CO₂ emissions from the proposed Terminal expansion and hangar buildings were estimated at 287 tons per year (tpy) under the Base Case scenario. According to the Department

of Energy Resources (DOER), the mitigation measures included in the Design Case will reduce GHG emissions to 217 tpy, a reduction of 70 tpy (24 percent). Key energy efficiency measures incorporated into the Design Case include electric air source heat pumps for space heating and cooling, enhanced building envelope, heat recovery systems and high-efficiency lighting. According to DOER, it is unclear which Building Code pathway that was selected to establish the Base Case and whether all baseline requirements of the Building Code were included in the model. In addition, the NPC/DEIR did not commit to construct the buildings with the measures included in the Design Case described above and did not provide any information on energy efficiency measures incorporated into the design of the new buildings in the industrial park. This information should be provided in the FEIR.

C-10

Land Alteration

The GHG Policy requires EIR projects altering significant land area to quantify GHG emissions resulting from tree cutting and soil disturbance and the associated long-term loss of carbon sequestration potential. The proposed land disturbance will primarily affect paved areas and grassland; therefore, the analysis was limited to GHG emissions and lost carbon sequestration potential caused by the clearing a total of 26 acres of trees to clear airspace obstructions. Based on estimates developed by the EPA, cutting the trees will cause a loss of 655 tons of carbon or approximately 2,402 tons of CO₂, and an ongoing loss of sequestration potential of 24 tpy. According to the NPC/DEIR, the actual biomass lost is likely to be lower than the estimate because most of the trees to be cut are less than 40 ft tall and there is a low density of trees in the areas where tree cutting will occur. In addition, impacts to carbon sequestered in the soil will be avoided by cutting the trees and leaving the stumps in place.

Mitigation

The NPC/DEIR indicated that the Airport is investigating the feasibility of installing solar photovoltaic (PV) systems on the roof of the Aircraft Rescue and Fire Fighting building and on canopies covering surface parking lots. The Airport is planning to add two or three electric vehicle (EV) charging stations in the near future and will continue to encourage the use of public transportation to and from the Airport. As described below, the FEIR should include a review of potential GHG mitigation measures, including energy efficient building design, and the measures described above, and implementation of a Transportation Demand Management (TDM) plan to minimize SOV trips to and from the site. The FEIR should include a commitment to provide a self-certification to the MEPA Office at the completion of the project. It should be signed by an appropriate professional (e.g. engineer, architect, transportation planner, general contractor) indicating that all of the GHG mitigation measures, or equivalent measures that are designed to collectively achieve identified reductions in stationary source GHG emission and transportation-related measures, have been incorporated into the project.

C-11

Construction Period

The NPC/DEIR identified construction-period measures to mitigate impacts to rare species habitat, water quality, traffic and air quality. Stormwater management measures will be used to minimize sedimentation and erosion. Construction contractors will be required to use Ultra Low Sulfur Diesel fuel, minimize idling and develop Traffic Management Plans. Additional information should be provided in the FEIR regarding the sampling, excavation,

C-12

handling and disposal of asbestos in buildings to be demolished and contaminated soil and groundwater, including soil and groundwater impacted by PFAS. Asphalt removed from existing taxiways and other paved areas should be reused or recycled to the maximum extent practicable.

C-12

Conclusion

Based on a review of the NPC/DEIR, comments letters and consultation with State Agencies, I have determined that the NPC/DEIR adequately and properly complies with MEPA and its implementing regulations. The MEPA regulations indicate that a DEIR can be determined adequate, even if certain aspects of the Project or issues require additional description or analysis in a FEIR, provided that it is generally responsive to 301 CMR 11.07 and the Scope.

As described above, the proposed projects have changed considerably since the ENF was filed and environmental impacts have been reduced. The NPC/DEIR provided an updated project description and described associated environmental impacts and mitigation measures. It was generally responsive the Scope included in the ENF Certificate, but additional analyses and information must be provided in the FEIR. The Proponent should submit an FEIR that provides the additional analyses of impacts and mitigation measures relative to Article 97 land conversion, rare species, GHG, climate change resiliency and PFAS remediation.

SCOPE

General

The FEIR should follow Section 11.07 of the MEPA regulations for outline and content and additional information and analyses required by this Scope. It should clearly demonstrate that project includes all feasible measures to avoid Damage to the Environment, or to the extent Damage to the Environment cannot be avoided, that it includes measures to minimize and mitigate Damage to the Environment to the maximum extent feasible.

Project Description and Permitting

The FEIR should provide an updated description, if necessary, of the proposed projects. It should include plans of existing and proposed conditions at a legible scale, including buildings, uses within buildings, roadways, public areas, impervious areas, subsurface utilities, surface elevations, wetland resource areas, rare species habitat and stormwater and utility infrastructure. The FEIR should identify and describe applicable State, federal and local statutory and regulatory standards and requirements and review how the projects will meet those standards. It should identify any changes to the projects, including changes in proposed phasing or additional proposed activities, since the filing of the NPC/DEIR.

Rare Species

The FEIR should include a proposed mitigation plan to address impacts to rare species habitat, including construction-period impacts. The Proponent should review DCR's recommendations related to tree clearing procedures and commit to feasible measures that will advance rare species habitat maintenance and improvement.

C-13

Article 97

According to the NPC/DEIR, a new easement over an additional 12 acres of land (15.2 acres total) may be needed to ensure future vegetation management can occur. The FEIR should provide an updated analysis consistent with the EEA Article 97 Land Disposition Policy that addresses all criteria for determining when “exceptional circumstances” exist such that a disposition of Article 97 land may be appropriate. The FEIR should provide a plan showing the additional 12 acres of DCR land that may be needed for future vegetation management activities and include this area in the updated Article 97 analysis. It should clearly identify and quantify all areas for which new easements will be sought and commit to providing compensation and mitigation consistent with the Article 97 Policy. The FEIR should confirm whether the proposed easements would affect the public use of those areas. The FEIR should describe any proposed activities affecting the DCR bike path and identify measures, if necessary, to ensure its uninterrupted use by the public.

C-14

C-15

Solid and Hazardous Waste

The FEIR should provide an update on the Proponent’s sampling and analysis of PFAS, including sampling results, additional analyses to be conducted and measures to address impacted drinking water wells. It should provide an overview of the anticipated MCP process for this site, including requirements for sampling, analysis and remediation, and a conceptual timeframe for completion of these requirements. I note this was requested in the DEIR and was not provided. The FEIR should address potential requirements for testing of soil and groundwater within the project sites. If any excavation is anticipated to commence before remediation of the site is completed, the FEIR should review the process by which that could be allowed under the MCP and identify potential measures for handling, storage, disposal and treatment of contaminated soil and/or groundwater. If possible, the FEIR should identify potential changes in the design of the project or construction schedule associated with PFAS remediation. The FEIR should review the potential for PFAS contamination to impact marine resources, as recommended by the Division of Marine Fisheries (DMF). The FEIR should provide updated information on the presence of asbestos in buildings to be demolished and identify measures for testing, handling and disposing of asbestos containing material. The FEIR should review the feasibility of on-site reuse of asphalt removed from runways and taxiways.

cont. of
C-7

see C-12

C-16

Climate Change

The Airport is a critical infrastructure facility that provides access between Martha’s Vineyard and the mainland. The FEIR should include a comprehensive analysis of threats to the Airport associated with climate change. In addition to increased frequency and intensity of storm events, the FEIR should review data prepared by the Martha’s Vineyard Commission regarding the potential impacts of drought and wildfires under existing and projected climate conditions and identify potential measures to increase the Airport’s resiliency. The Airport should design its drainage systems with sufficient capacity to ensure that runoff can be collected and managed under more frequent and intense storm events anticipated in the future. The FEIR should review the performance of the drainage systems using the best available climate projections and data; at a minimum, rainfall data from the NOAA Atlas 14 should be consulted and increased by a factor that takes into account the effects of climate change. If the project (including supporting infrastructure) will not be designed to meet specifications based on climate projections, the FEIR

cont. of
C-9

should provide an explanation of the reasons and a description of whether and how the project will be able to take further steps to adapt to climate conditions at a later stage.

The FEIR should provide a revised GHG analysis of the Terminal expansion and new hangar buildings and provide data on the design of the industrial park buildings in accordance with DOER's comment letter, which is incorporated by reference herein. The GHG analysis should clearly identify the Building Code pathway used for each building and the corresponding design features. The FEIR should review and commit to additional measures to mitigate the projects' energy use and biomass impacts, such as installation of solar PV systems, additional TDM measures to minimize SOV trips, tree planting, reuse of trees rather than disposing of them by chipping, and EV charging stations. It should review procedures for minimizing GHG emissions from aircraft idling.

see C-10

Mitigation and Draft Section 61 Findings

The FEIR should include a separate chapter summarizing proposed mitigation measures, including construction period measures. This chapter should also include draft Section 61 Findings for each permit to be issued by State Agencies. The FEIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation. The FEIR should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing, either tying mitigation commitments to overall project square footage/phase or environmental impact thresholds, to ensure that adequate measures are in place to mitigate impacts associated with each development phase.

C-17

Responses to Comments

The FEIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the FEIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the FEIR beyond what has been expressly identified in this certificate.

C-18

Circulation

The Proponent should circulate the FEIR to those parties who commented on the ENF and/or NPC/DEIR, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations. Per 301 CMR 11.16(5), the Proponent may circulate copies of the FEIR to commenters in CD-ROM format or by directing commenters to a project website address. However, the Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Proponent should send correspondence accompanying the CD-ROM or website address indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. The FEIR submitted to the MEPA office should include a digital

C-19

copy of the complete document. A copy of the FEIR should be made available for review through the West Tisbury and Edgartown public libraries (if open).¹

K. Theoharides

March 12, 2021

Date

Kathleen A. Theoharides

Comments received:

02/22/2021	Division of Marine Fisheries (DMF)
02/25/2021	Massachusetts Historical Commission (MHC)
03/03/2021	Massachusetts Department of Environmental Protection (MassDEP)/Southeast Regional Office (SERO)
03/05/2021	MassAudubon
03/05/2021	Natural Heritage and Endangered Species Program (NHESP)
03/05/2021	Massachusetts Department of Transportation (MassDOT)
03/05/2021	U.S. Environmental Protection Agency (EPA)
03/05/2021	Department of Conservation and Recreation (DCR)
03/12/2021	Department of Energy Resources (DOER)

KAT/AJS/ajs

¹ Requirements for hard copy distribution or mailings will be suspended during the Commonwealth's COVID-19 response, to the extent public facilities are closed. Please consult the MEPA website for further details on interim procedures during this emergency period:
<https://www.mass.gov/orgs/massachusetts-environmental-policy-act-office>.



The Commonwealth of Massachusetts

Division of Marine Fisheries

251 Causeway Street, Suite 400, Boston, MA 02114

p: (617) 626-1520 | f: (617) 626-1509

www.mass.gov/marinefisheries



CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

KATHLEEN A. THEOHARIDES
Secretary

RONALD S. AMIDON
Commissioner

DANIEL J. MCKIERNAN
Director

February 2, 2021

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Alex Strysky, EEA No. 15964
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Theoharides:

The Division of Marine Fisheries (MA DMF) has reviewed the Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) for the Martha's Vineyard Airport Capital Improvement Plan. Proposed capital improvements include a variety of construction, rehabilitation, and upgrades to the existing airport property divided into eight sub-projects proposed for construction from 2021 to 2030: 1) Business Parking Lots 34 and 38, 2) Improve Fuel Farm Access and Safety, 3) Aircraft Hangar Development, 4) Airspace Vegetation Management, Runway 6-24, 5) Runway 15-33 and Taxiway E Reconstruction, and Vegetation Management, 6) Terminal Building Renovation, 7) Aircraft Parking and Movement Areas, and 8) Access Road Improvements. Existing marine fisheries resources and habitat in the project vicinity and potential project impacts to those resources are outlined in the following paragraphs.

Martha's Vineyard Airport borders Oyster Pond, which is approximately 3,000 feet to the southeast, and Tisbury Great Pond, which is approximately one mile southwest of the project site. Both systems provide habitat for a variety of finfish and shellfish species. Winter flounder (*Pseudopleuronectes americanus*) are present in both systems as are a variety of diadromous fish species including alewife (*Alosa pseudoharengus*), rainbow smelt (*Osmerus mordax*), white perch (*Morone americana*), and American eel (*Anguilla rostrata*). Tisbury Great Pond also supports blueback herring (*Alosa aestivalis*) resources (Evans *et al.*, 2011). Both systems provide shellfish habitat for American oyster (*Crassostrea virginica*) while sections of Tisbury Great Pond also contain surf clam (*Spisula solidissima*) and soft shell clam (*Mya arenaria*) habitat.

MA DMF offers the following comments for your consideration:

- MA DMF did not identify any resource concerns in reviewing the Environmental Notification Form (ENF) previously for this project due to the fact that all project work was proposed to occur landward of MLW and no avoidable indirect impacts were identified at the time of that review. The DEIR/EA provides new information on PFAS

(per- and poly-fluoralkyl substances) contamination at the site that could impact marine resources in nearby Oyster Pond and Tisbury Great Pond. High PFAS concentrations in fish have been associated with airports and military bases with a history of aqueous-film forming foam (AFFF) use (Stahl *et al.*, 2014). As stated in the DEIR/EA, MA DMF recommends close coordination with MassDEP in managing the appropriate handling of any PFAS-contaminated material encountered in the construction process. The EA/DEIR also notes that the Airport is investigating and managing PFAS contamination under a separate endeavor. MA DMF recommends that the final EA/EIR further elaborate on proposed PFAS monitoring under this separate endeavor. Specifically, monitoring of PFAS transfer to nearby estuarine environments should be addressed.

1-1

Questions regarding this review may be directed to John Logan in our New Bedford office at john.logan@mass.gov.

Sincerely,



Daniel J. McKiernan

Director

cc: Edgartown Conservation Commission
West Tisbury Conservation Commission
Jed Merrow, McFarland-Johnson, Inc.
Kaitlyn Shaw, NMFS
Robert Boeri, CZM
Ed Reiner, EPA
Bev Vucson, DFG
Eileen Feeney, Kathryn Ford, Simone Wright, John Mendes, Tom Shields, DMF

References

- Evans, N. T., Ford, K. H., Chase, B. C., & Sheppard, J. (2011). Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts. Massachusetts Division of Marine Fisheries Technical Report, TR-47.
- Stahl, L. L., Snyder, B. D., Olsen, A. R., Kincaid, T. M., Wathen, J. B., & McCarty, H. B. (2014). Perfluorinated compounds in fish from U.S. urban rivers and the Great Lakes. *Science of The Total Environment*, 499, 185–195.

DM/JL/sd



The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

February 25, 2021

Secretary Kathleen A. Theoharides
Executive Office of Energy & Environmental Affairs
Attn: Alex Strycky, MEPA Unit
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Martha's Vineyard Airport, Capital Improvement Plan Projects, West Tisbury and Edgartown, MA. MHC #RC.48090. **EEA #15964.**

Dear Secretary Theoharides:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the Notice of Project Change/Draft Environmental Impact Report (NPC/DEIR) submitted for the project referenced above. The project changes include modifications to business lots 34 and 38, aircraft hangars and vegetation management activities. The MHC has also reviewed the archaeological report, *Addendum, Intensive (Locational) Archaeological Survey, Martha's Vineyard Airport 2020 Improvements Project, West Tisbury and Edgartown, Massachusetts*, prepared and submitted by the PAL, for the project referenced above

The airport is included in the MHC's Inventory of Historic and Archaeological Assets of the Commonwealth (MHC #WTI.HA.21) because of its former use as a military airfield. Multiple archaeological investigations have been conducted at the airport during previous projects. The archaeological survey referenced above included archaeological testing within archaeologically sensitive portions of the Runways 6, 24, 15, and 33 obstruction removal projects, and the Taxiway E alternative. No archaeological resources were identified within the project impact areas for Runways 6, 24, 15, and 33 obstruction removal projects, and the Taxiway E alternative.

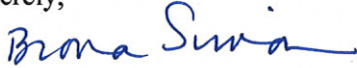
Previous archaeological investigations suggest that the majority of the airport exhibits low archaeological sensitivity, due to previous disturbances associated with past military construction activities. The MHC recommends no further archaeological survey for the overall Capital Improvements Plan projects as proposed. In the MHC's staff opinion, the Capital Improvements Plan projects as proposed are unlikely to affect significant historic or archaeological resources.

If project plans change substantially in future, then the MHC recommends that current project information be provided by the project proponent or engineer to the PAL for their updated archaeological sensitivity assessment. Additional intensive (locational) archaeological survey (950 CMR 70) may be required in future for any proposed project impact areas that are archaeologically sensitive.

2-1

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 70-71) and MEPA (301 CMR 11). If you have any questions concerning this review, please contact Jonathan K. Patton, Archaeologist/Preservation Planner at this office.

Sincerely,



Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

XC: Ann B. Richart, Director, Martha's Vineyard Airport
Richard Doucette, FAA
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
David Weeden, Mashpee Wampanoag Tribe
Massachusetts Aeronautics Commission
West Tisbury Historical Commission
Edgartown Historical Commission
Jed Merrow, McFarland-Johnson
Deborah C. Cox, PAL, Attn: Holly Herbster



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

March 3, 2021

Kathleen A. Theoharides
Secretary of Environment and Energy
Executive Office of Energy and
Environmental Affairs
ATTN: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: NPC/DEIR Review. EOEEA 15964
WEST TISBURY - EDGARTOWN. Martha's
Vineyard Airport Capital Improvement Plan
Project at 14 Airport Road

Dear Secretary Theoharides,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Notice of Project Change (NPC)/Draft Environmental Impact Report (DEIR) for the Nantucket Memorial Airport 5-year Capital Improvement Plan Projects at 14 Airport Road, Nantucket, Massachusetts (EOEEA #16128). The Project Proponent provides the following information for the Project's changes:

Two projects were not in the ENF and one has been substantially modified. These are described briefly below and are also fully addressed in the Draft EIR. **Please refer to the Draft EIR for the purpose and need, alternatives analysis, proposed design plans, existing environmental resources, impacts, mitigation, Section 61 Findings, regulatory compliance, and agency coordination associated with these new or expanded projects.** The locations and plans for these projects are also included in the DEIR.

Business Park Lots 34 and 38

These are two lots within the airport's Business Park that have been developed. After the ENF was filed, it was learned that they were developed without obtaining state regulatory approvals. The airport consulted the MEPA Office and it was determined they should be included in the EIR.

The lots were previously subdivided as part of the larger Business Park development and together total 1.2 acres in size. They are located in Priority Habitat of Rare Species. Because they were previously developed (Lot 34 was cleared and graded and Lot 38 has a building and active business) and are part of the Business Park, they are proposed to remain as developed parcels. Appropriate mitigation for rare species and habitat impacts will be included in the overall Capital Improvement Plan impact mitigation proposal. It is expected that the overall projects will be designed and conditions such that they improve overall rare species habitat and have a net benefit to rare species.

Aircraft Hangar Development

The previously reviewed proposal was for a single new hangar. Since that time, the preferred alternative for the Aircraft Parking and Movement project is to reconfigure the Southwest Ramp, which entails the removal of four existing hangar buildings. Also, a prospective tenant has interest in a new hangar, and if in the near future there is a second interested party, the airport would like to provide the space. The previously proposed hangar was for an 80 foot by 80-foot hangar covering 15,900 square feet. The current proposal calls for one hangar with a footprint of 9,200 square feet and a second of 15,234 square feet.

Airspace Vegetation Removal

After the ENF was filed, during a pavement rehabilitation project, it was discovered that vegetation (mostly trees) within the four runway approaches have grown into regulated airspace that must be kept clear for safety purposes. An obstruction analysis was undertaken to define the extent of the obstructions. Discussions were held with FAA, MassDOT, and regulatory agencies to determine what airspace to keep clear, what resources would be impacted, and how impacts could be avoided, minimized, and mitigated. Ultimately, the airport, FAA and MassDOT agreed to cut vegetation only from the minimum airspace that is necessary to maintain current operations and to take other avoidance and minimization measures. Vegetation would need to be cut within approximately 33 acres of land. Most of the vegetation cutting would be either on airport property or within easements held by the airport. Approximately 3.2 acres would be within the Manuel F. Correllus State Forest outside of easements. An easement may be needed to remove vegetation within the State Forest, and the size of the easement has not yet been determined. Discussions with the MA Department of Conservation and Recreation and the MA Natural Heritage and Endangered Species Program are ongoing.

Bureau of Water Resources Comments

The Proponent's DEIR has addressed the Bureau of Water Resources' comments.

Bureau of Waste Site Cleanup Comments

The Proponent's response to MassDEP's comments (response to DEP-8 on page 9-21 (pdf page 127)) should be clearer. MassDEP underscores the requirement that the Airport and LSP discuss the required Release Abatement Measure (RAM) Plan and associated PFAS sampling prior to initiation of work.

3-1

Regarding the response to comment # DEP-9, the Proponent states that "soils will be tested for contaminants in accordance with state guidelines." As of now, there are no guidelines requiring PFAS analysis. However, PFAS analysis will be required given that the airport has not delineated the extent of contamination as of the writing of this email. MassDEP again underscores the requirement that the airport LSP discuss the activities prior to the commencement of construction involving soil removal.

3-2

Bureau of Air and Waste (BAW) Comments

Air Quality. The Proponent is advised that the Department's Air Quality regulations (310 CMR 7.11(3) Aircraft) specifies that "No person owning or operating an airport shall cause, suffer, allow, or permit routine warmups, testing, or other operation of aircraft while on the ground, in such a manner as to cause or contribute to a condition of air pollution, outside of the property lines of the

airport, that in the opinion of the Department are unreasonable and feasibly preventable.” To further clarify, this means that all aircraft, once on the ground, should cease to operate its engines until such time when departure is warranted. Alternatively, to running these engines on idle, when warranted to maintain comfort within these aircraft during the warm summer months, plug in stations should be provided by the airport as an alternative to the greenhouse gas emissions, air pollutant emissions and noise that are emitted while these engines continue to operate while on the ground to keep onboard systems (refrigeration, air conditioning, etc.) running.

3-3

In fulfillment of the requirements of 301 CMR 11.07(6) and the Greenhouse Gas (GHG) Emissions Policy and Protocols (<https://www.mass.gov/doc/greehouse-gas-emissions-policy-and-protocol/download>), the Proponent is required to provide the Department with an analysis of alternatives to idling (plug in stations) to address GHG, air quality in general and noise, and the proposed mitigation measures to reduce those emissions. In view of the incoming comments that were shared with the Department, the exhaust emissions and noise generated from the idling of the aircraft engines during the summer months when the airport is busiest appears to be an ongoing public health concern when those engines are on idle - hours prior to departure for the operation of onboard systems that provide air conditioning comfort to its passengers.

3-4

Solid Waste Management. The Proponent’s DEIR has addressed the Solid Waste Management program’s ENF comments.

The NPC calls for Tree Clearing. The Proponent should be aware that the Project will require the handling of clean wood associated with tree removal. As defined in 310 CMR 16.02, clean wood means “discarded material consisting of trees, stumps and brush, including but limited to sawdust, chips, shavings, bark, and new or used lumber” ...etc. Clean wood does not include wood from commingled construction and demolition waste, engineered wood products, and wood containing or likely to contain asbestos, chemical preservatives, or paints, stains or other coatings, or adhesives. The Proponent should be aware that wood is not allowed to be buried or disposed of at the Site pursuant to 310 CMR 16.00 & 310 CMR 19.000 unless otherwise approved by MassDEP. Clean wood may be handled in accordance with 310 CMR 16.03(2)(c)7 which allows for the on-site processing (i.e., chipping) of wood for use at the Site (i.e., use as landscaping material) and/or the wood to be transported to a permitted facility (i.e., wood waste reclamation facility) or other facility that is permitted to accept and process wood.

3-5

If you have any questions regarding the Solid Waste Management Program comments above, please contact Mark Dakers at (508) 946-2847.

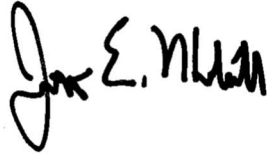
Industrial Wastewater. Martha’s Vineyard Airport is required to demonstrate the ability to apply extinguishing agent as part of its FAA Part 139 safety certification. The capital improvements to the airport should include provisions to collect the wastewater containing the extinguishing agents generated during these demonstrations and/or training events so that proper treatment and/or disposal can occur in conformance with Massachusetts requirements.

3-6

Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this NPC/DEIR. If you have any questions regarding these comments, please contact George Zoto at (508) 946-2820.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jon E. Hobill". The signature is stylized with a large initial "J" and a cursive "E".

Jonathan E. Hobill,
Regional Engineer,
Bureau of Water Resources

JH/GZ

Cc: DEP/SERO

ATTN: Millie Garcia-Serrano, Regional Director

David Johnston, Deputy Regional Director, BWR

Gerard Martin, Deputy Regional Director, BWSC

Seth Pickering, Deputy Regional Director, BAW

Jennifer Viveiros, Deputy Regional Director, ADMIN

Dan Gilmore, Chief, Wetlands and Waterways, BWR

Joseph Cerutti, Underground Injection Control, BWR/Boston

Mark Dakers, Chief, Solid Waste, BAW

Alison Cochrane, Solid Waste, BAW

Elza Bystrom, Solid Waste, BAW

Tom Cushing, Chief, Air Quality, BAW

John Handrahan, Chief, Compliance and Enforcement, Brownfields, BWSC

Angela Gallagher, Compliance and Enforcement, Brownfields, BWSC

Allen Hemberger, Site Management, BWSC



March 5, 2021

Secretary Kathleen A. Theoharides
Executive Office of Energy and Environmental Affairs
Attn: Alex Strysky, MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: EOEEA #15964 Martha's Vineyard Airport Capital Improvements Plan DEIR/NPC

Dear Secretary Theoharides:

The Department of Conservation and Recreation ("DCR" or "Department") is pleased to submit the following comments in response to the Draft Environmental Impact Report / Notice of Project Change ("DEIR/NPC") submitted by the Martha's Vineyard Airport Commission (the "Proponent") for the Martha's Vineyard Airport Improvements Plan (the "Project").

Martha's Vineyard Airport is located in West Tisbury and Edgartown, Massachusetts. Work is proposed primarily on airport property, but also on adjacent easements held by the airport and potentially on adjacent roads and rights-of-way, a DCR bike path, and Manuel F. Correllus State Forest ("MFCSF"). Transfer of airspace easements and other permanent access to DCR property will trigger Article 97.

Vegetation Management in Priority Habitat

Potential impacts from vegetation management in Priority Habitat within the state forest is a priority concern. DCR will work with the Proponent and the Division of Fisheries and Wildlife Natural Heritage & Endangered Species Program ("NHESP") as the Proponent develops Habitat Management Plans for vegetation cover types that will be subject to airspace vegetation management. The Department provides the following initial recommendations to preserve the structural composition of rare priority natural communities to the maximum extent possible:

- Pitch Pine/Oak Canopy: selective oak removal (retain larger diameter, well-formed oaks less than 20-feet-tall unless predicted to penetrate airspace within the next 35 years), removal of all evergreens, preservation of understory with avoidance measures during tree removal.
- Coastal Forest/Dense Oak/White Pine with Blueberry/Huckleberry understory: removal of all evergreens, selective oak removal, preservation of understory with avoidance measures during tree removal.
- Tall white Pine Forest /Open Understory: removal of all evergreens, preservation of any understory that is present with avoidance measures during tree removal.
- Tree Oaks with some Pine/ Open Shrub Layer: removal of all evergreens, selective oak removal, preservation of understory with avoidance measures during tree removal.
- Scrub Oak: preservation of scrub oak present in all tree removal areas to the maximum extent possible. Prioritization of larger/ multi stemmed clumps for protection.
- Removal of cut trees and majority of slash, and no chipping on site.

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2119
617-626-1250 617-626-1351 Fax
www.mass.gov/orgs/departments-of-conservation-recreation



Charles D. Baker
Governor

Karyn E. Polito
Lt. Governor

Kathleen A. Theoharides, Secretary,
Executive Office of Energy & Environmental Affairs

Jim Montgomery, Commissioner
Department of Conservation & Recreation

- Invasive species assessment prior to work activities, implementation of invasive species management and spread prevention techniques during the cut, and monitoring / reporting to DCR for inventory and monitoring on DCR easements.

DCR Bike Path Improvements and Forest Roads

Stretches of the DCR-managed bike path are located close to the airport and through the airport property. DCR is undertaking planning and design for bike path improvements, and the Department requests coordination with the Proponent to protect and enhance the bike path with the following specific recommendations:

- Maintain and enhance the vegetative barrier along the roadside edge of the bike path for shade, safety, and aesthetic purposes.
- Maintain and enhance the vegetative barrier along the eastern edge of Barnes Road to discourage unauthorized vehicular access into the State Forest.

4-2

Article 97 Land Disposition

The DEIR indicates that the Proponent intends to cut vegetation only from the minimum airspace that is necessary to maintain current operations. DCR is working with the Proponent and NHESP to identify the extent of vegetation within the State Forest required for airspace vegetation management. Transfers of interests in state conservation property must meet the requirements set forth in the Executive Office of Energy and Environmental Affairs (“EEA”) Article 97 Land Disposition Policy (the “Policy”). The Policy has the stated goal of ensuring no net loss of Article 97 lands under the ownership and control of the Commonwealth, and states as a general premise that EEA and its agencies shall not sell, transfer or otherwise dispose of any right or interest in Article 97 lands. Transfer of ownership or interests therein only may occur under exceptional circumstances, as defined in the Policy, including the determination that no feasible alternative is available, and a minimum amount of land or an interest therein is being disposed for the proposed use. Transfer also requires authorization by the General Court through a two-thirds supermajority roll call vote.

4-3

DCR supports the granting of an easement over the subject property for airspace vegetation management and will continue to work with the Proponent and their attorneys to develop the easement and to ensure that the process is compliant with EEA’s Article 97 Policy. A DCR Construction and Access Permit for activities allowed under a conservation permit issued by NHESP will be needed for permitted vegetation management activities on DCR property that occur between the passage of Article 97 legislation and the recording of the easement.

4-4

Thank you for the opportunity to comment on the DEIR/NPC. Please contact DCR Ecologist Ale Echandi at ale.echandi@mass.gov regarding rare species protection and invasive species management. Please contact Greenways and Trails Director Paul Jahnige regarding the bike path planning and protection. Please contact State Forest Supervisor Conor Laffey at conor.laffey@mass.gov regarding forest roads and access considerations. Please contact the Director of Construction & Access Permitting Sean Casey at sean.casey@mass.gov regarding a DCR Construction and Access Permit. Questions related to Article 97 can be directed to Shaun Provencher at shaun.provencher@mass.gov.

Sincerely,



Jim Montgomery
Commissioner

Cc: Shaun Provencher, Ale Echandi, Paul Jahnige, Conor Laffey, Sean Casey, Priscilla Geigis, Patrice Kish, Tom LaRosa (DCR)



Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Jamey Tesler, Acting Secretary & CEO



March 5, 2021

Kathleen Theoharides, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114-2150

RE: West Tisbury: Martha's Vineyard Airport Capital Improvement Plan – DEIR
(EEA #15964)

ATTN: MEPA Unit
Alex Strysky

Dear Secretary Theoharides:

On behalf of the Massachusetts Department of Transportation, I am submitting comments regarding the Draft Environmental Impact Report for the West Tisbury: Martha's Vineyard Airport Capital Improvement Plan projects in West Tisbury and Edgartown, as prepared by the Office of Transportation Planning. If you have any questions regarding these comments, please contact J. Lionel Lucien, P.E., Manager of the Public/Private Development Unit, at Lionel.Lucien@state.ma.us.

Sincerely,

David J. Mohler
Executive Director
Office of Transportation Planning

DJM/jll

Ten Park Plaza, Suite 4150, Boston, MA 02116

Tel: 857-368-4636, TTY: 857-368-0655

www.mass.gov/massdot

cc: Jonathan Gulliver, Administrator, Highway Division
Patricia Leavenworth, P.E., Chief Engineer, Highway Division
Mary Joe Perry, District 5 Highway Director
Neil Boudreau, Assistant Administrator of Traffic and Highway Safety
Planning Board, Town of West Tisbury
Planning Board, Town of Edgartown
Cape Cod Commission



Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Jamey Tesler, Acting Secretary & CEO



MEMORANDUM

TO: David Mohler, Executive Director
Office of Transportation Planning

FROM: J. Lionel Lucien, P.E, Manager
Public/Private Development Unit

DATE: March 5, 2021

RE: West Tisbury: Martha's Vineyard Airport Capital Improvement Plan – DEIR
(EEA #15964)

The Public/Private Development Unit (PPDU) has reviewed the Draft Environmental Impact Report (DEIR) for the Martha's Vineyard Airport Capital Improvement Plan Projects ("Project") in the towns of West Tisbury and Edgartown. The Project involves several improvements as defined in the airport's 2016 Capital Improvement Plan, including the expansion and renovation of the existing terminal building.

The project is expected to generate 30 to 40 new weekday daily trips as a result of two new proposed hangars. Site access is proposed at Airport Road via its intersection with West Tisbury-Edgartown Road, south of the project. The project does not exceed the Massachusetts Environmental Policy Act (MEPA) threshold for transportation threshold as the expanded parking area is no longer proposed. The project still requires a Vehicular Access Permit for modifications to the Airport Road approach as it intersects Edgartown-West Tisbury Road, a state-owned roadway.

The DEIR includes a limited Transportation Impact Assessment (TIA) that adequately discusses the transportation impacts of the project. The DEIR addresses MassDOT's comments on the ENF and includes a comprehensive mitigation program. We offer the following comments.

Study Area

The Proponent considered the following intersections when evaluating the transportation impacts of the Project:

- West Tisbury-Edgartown/Airport Road; and
- West Tisbury-Edgartown Road/Barnes Road

The study area is considered to be acceptable and adequate in capturing the impact of the Project on area roadways.

Site Access Improvements

Primary Access to the airport is provided via the unsignalized intersection of Airport Road with West Tisbury-Edgartown Road. The Airport Road approach to this intersection is currently experiencing significant delay and queuing, which is expected to worsen with the additional traffic associated with the expansion. To alleviate existing conditions and the additional traffic impacts, the Proponent has evaluated three alternative improvement scenarios. The first scenario would entail the construction of a round-about to replace the intersection; the second scenario would consist of the construction of a right-turn lane on the Airport Road approach, and the third scenario, the construction of left and right-turn lanes on the West Tisbury-Edgartown Road approaches of the intersection. Based on the traffic operations analysis and environmental impacts at the intersection, the second scenario was selected as the preferred alternative for improvements.

We note that all proposed improvements within the state highway layout and internal site circulation must be consistent with a healthy transportation design approach that provides adequate and safe accommodation for all roadway users, including pedestrians, bicyclists, and public transit riders. Guidance on healthy transportation design is included in the MassDOT *Project Development and Design Guide*.

5-1

Mitigation

The Proponent has committed to implement the second scenario to address the project's impacts at the intersection, in addition to the Transportation Demand Management (TDM) measures described below. The Proponent should work with the Highway Division District 5 Office to finalize the design and implementation of the intersection improvement project.

5-2

Multimodal Access and Facilities

The Proponent has indicated that they will coordinate with the Martha's Vineyard Joint Transportation Committee and its Bicycle and Pedestrian Advisory Committee to ensure the safe use of the bike paths on Barnes Road and West Tisbury-Edgartown Road. The Proponent has also indicated that they would continue to pursue their goal to reduce single-occupancy vehicle trips by promoting the use of the Martha's Vineyard Transit Authority's bus services and utilizing the taxi and livery services that are already available at the airport.

5-3

MassDOT recommends that no further environmental review be required based on transportation-related issues. MassDOT will issue a Section 61 Finding for the project based on the draft included in the DEIR. If you have any questions regarding these comments, please contact me at Lionel.Lucien@state.ma.us



208 South Great Road, Lincoln, MA 01773
781.259. 2172 hricci@massaudubon.org

March 5, 2021

Secretary Kathleen A. Theoharides
Executive Office of Energy and Environmental Affairs
Attention: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

Via Email: alexander.strysky@mass.gov

Re: EOEAA # 15964 Martha's Vineyard Airport Capital Improvement Plan Projects, West Tisbury and Edgartown

Dear Secretary Theoharides:

On behalf of Mass Audubon I submit the following comments on the Draft Environmental Impact Report (DEIR) and Notice of Project Change (NPC) for proposed capital improvements at the Martha's Vineyard Airport. Several projects are proposed, including work on and around the terminal, fuel farm, hangers, aircraft parking areas and a new taxiway, access road improvements, and vegetation management including proposed tree removals, including alterations within the Department of Conservation and Recreation (DCR) Manuel F. Correllus State Forest. The airport is located in a sensitive environment, at the center of the island on top of the sole source aquifer providing water supplies to the island, surrounded by the state forest, and supporting a wide diversity of native species including more than twenty state-listed rare species (birds, invertebrates, and plants). The NPC also indicates that two lots within the Business Park that is part of the airport have already been developed; the current review includes these impacts and notes that after-the-fact mitigation for rare species impacts will be needed.

Water Resources

The location of the airport at the center of the island places it in a position where any pollution in runoff and groundwater infiltration risks contamination of the island's sole source aquifer. The DEIR indicates that PFOA/PFAS contamination has already occurred on the property, likely due to the use of firefighting foam. The DEIR provides general statements about commitments to working on the cleanup of existing contamination, measures to prevent spread during construction, and operational measures to reduce the risk of contamination during training procedures. The DEIR indicates that the Spill Prevention, Control and Countermeasure (SPCC) Plan was last updated in 2012, and makes a general commitment to continued updates. The proposed improvements to the fuel farm area will include paving the access way and installing a new, larger oil-water separator.

The Final EIR should contain more specific information including further details on the status of cleanup plans for the existing PFAO/PFAS contamination and how soils in those areas will be managed during construction; a schedule for updating the SPCC Plan including measures to address both routine operations and emergency incidents; and details on the fuel farm showing that any accidental fuel spills there can be fully contained.

6-1

Rare Species and Habitat Management

The project will require a Conservation and Management Permit under the Massachusetts Endangered Species Act. The FEIR should include the draft proposed updated habitat management plan, including

information on habitat management activities conducted to date and a summary of the results and revised and enhanced management to address the new impacts and any refinements warranted based on the experience with habitat management at the site to date. As noted in Mass Audubon's comments on the Environmental Notification Form (ENF), ecological monitoring and habitat management should be conducted in cooperation with DCR, in consideration of the interconnectedness of habitats on the airport with those in the state forest.

6-2

We reiterate our previous comments in support of a carefully designed and implemented grassland management plan (including mowing schedules) for the site that could potentially enable the property to support species including Grasshopper Sparrow, Eastern Meadowlark, and Savannah Sparrow. The Pitch Pine/Scrub Oak habitat around the airfield, both on the property and in the adjacent state forest, is important to several species including the Eastern Towhee, Prairie Warbler, and Eastern Whip-poor-will. Whip-poor-wills are listed as being of Special Concern in Massachusetts

6-3

(<https://www.mass.gov/files/documents/2016/08/tm/antrostomus-vociferus-2015.pdf>), and the Manuel Correllus State Forest and vicinity is listed as one of "only six sites in Massachusetts that support 20 or more pairs of Whip-poor-wills." We also reiterate our suggestion for the pursuit of a multi-year research plan focused on monitoring Eastern Whip-poor-wills in the state forest. Northern Bobwhite, American Woodcock, and Chuck-will's-widow also have been documented in the area surrounding the airport. Other species of interest that utilize the area include Snowy Owls in winters, and in surrounding woodlands Long-Eared Owl, Saw-whet Owl, Eastern Screech-Owl, and Great Horned Owls. The Pitch Pine/Scrub Oak habitat on and around the airport also supports several rare species of moths.

The response to comments on the ENF indicated that the Airport is working with the Natural Heritage and Endangered Species Program (NHESP) and DCR on habitat impacts and mitigation. The FEIR should contain further details including the draft proposed plans for ecological monitoring and habitat management.

6-4

Article 97

The proposed project includes clearing of trees and other vegetation management within the state forest. This is an alteration of publicly owned conservation lands protected under Article 97 of the State Constitution. Mass Audubon believes that mitigation should be required, and should be coordinated with the habitat monitoring and management program mentioned above, including funding for some research and management of habitat on DCR land.

6-5

Renewable Energy

Mass Audubon supports the proposed plans to make building as the airport solar-ready, and hopes to see a firm commitment to deployment of solar in the FEIR.

6-6

Thank you for considering these comments. Mass Audubon urges that every feasible measure be implemented on this project to protect precious land and water resources of Martha's Vineyard.

Sincerely,



E. Heidi Ricci
Director of Policy

Cc: NHESP
DCR
Martha's Vineyard Commission
Jed Merrow, McFarland Johnson



MASSWILDLIFE

DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581

p: (508) 389-6300 | f: (508) 389-7890

MASS.GOV/MASSWILDLIFE

March 5, 2021

Kathleen A. Theoharides, Secretary
Executive Office of Energy and Environmental Affairs
Attention: MEPA Office
Alex Strysky, EEA No. 15964
100 Cambridge St.
Boston, Massachusetts 02114

Richard P. Doucette
Federal Aviation Administration
1200 District Avenue
Burlington MA 01803

<i>Project Name:</i>	<i>Martha's Vineyard Airport Capital Improvement Plan (CIP)</i>
<i>Proponent:</i>	<i>Martha's Vineyard Airport Commission</i>
<i>Location:</i>	<i>71 Airport Road, West Tisbury & Edgartown</i>
<i>Document Reviewed:</i>	<i>Draft Environmental Impact Report / Environmental Assessment</i>
<i>EEA No.:</i>	<i>15964</i>
<i>NHESP No.:</i>	<i>17-36753 (& 20-39524)</i>

Dear Secretary Theoharides and Mr. Doucette:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") has reviewed the *Notice of Project Change / Draft Environmental Impact Report / Environmental Assessment* (NPC/DEIR/EA) for the proposed *Martha's Vineyard Airport Capital Improvement Plan* (the "Project") and would like to offer the following comments regarding state-listed species and their habitats.

Martha's Vineyard Airport is delineated as Priority Habitat for state-listed species, as depicted in the *Massachusetts Natural Heritage Atlas* (14th Edition). State-listed species and their habitats are protected pursuant to the Massachusetts Endangered Species Act (MGL c.131A) and its implementing regulations (321 CMR 10.00; MESA). The Airport contains important natural communities including Pitch Pine-Scrub Oak Woodland, Sandplain Grassland, and Sandplain Heathland and also supports at least 30 state-listed species: plants, invertebrates, and avian species (see NPC/DEIR/EA Table 4-3). Portions of Martha's Vineyard Airport are currently managed to maintain habitat for state-listed species in accordance with the provisions of a MESA Conservation and Management Permit issued in 2005 (CMP; 004-039.DFW).

The MESA is administered by the Division and prohibits the Take of state-listed species, which is defined as "in reference to animals...harm...kill...disrupt the nesting, breeding, feeding or migratory activity...and in reference to plants...collect, pick, kill, transplant, cut or process...Disruption of nesting, breeding, feeding, or migratory activity may result from, but is not limited to, the modification, degradation, or destruction of Habitat" of state-listed species (321 CMR 10.02).

MASSWILDLIFE

The Projects detailed within the Capital Improvement Plan are beyond the scope of the 2004 CMP and will therefore require a direct filing with the Division for compliance with the MESA and its implementing regulations (321 CMR 10.18 and 10.23).

The Proponent has engaged in pre-filing consultations with the Division for projects that are identified within the Martha's Vineyard Capital Improvement Plan. Based on consultations to date, it appears the Proponent has incorporated alternatives that reduce impacts to state-listed species and their habitats. The Airspace Vegetation Management has the potential to enhance habitat for many state-listed invertebrate and plant species. Cumulatively, the CIP projects propose a net reduction in new impervious surface. Notably, the Runway 6-24 Side Safety Area (No-Build Alternative), if approved by the FAA, would avoid the alteration of ± 26.4 acres of grassland habitat and avoid direct impacts to state-listed plant species.

7-1

Nevertheless, based on the information provided in the DEIR/EA and ongoing consultations with the Proponent - and in advance of a formal MESA filing - the Division anticipates that the Project will result in a Take of state-listed species and their habitats and will require a CMP to proceed. Projects resulting in a Take of state-listed species may only be permitted if the performance standards for a CMP are met. For a project to qualify for a CMP, the applicant must demonstrate that the project has avoided, minimized and mitigated impacts to state-listed species consistent with the following performance standards: (a) adequately assess alternatives to both temporary and permanent impacts to the state-listed species, (b) demonstrate that an insignificant portion of the local population will be impacted, and (c) develop and agree to carry out a conservation and management plan that provides a long-term Net Benefit to the conservation of the state-listed species.

7-2

The Proponent has engaged the Division in preliminary discussions regarding the development of a conservation and management plan for the long-term net benefit of state-listed species associated with the Project. At this time, the details of a long-term Net Benefit plan (321 CMR 10.23) have not been finalized. However, the Division anticipates that a suitable long-term Net Benefit may be achieved through, the permanent protection and management of suitable, high quality habitat, habitat enhancement, habitat restoration, or conservation and research funding. Based on these preliminary discussions, the Division anticipates that the Project will likely be able to meet the performance standards of a CMP.

We recommend that the Proponent continue to proactively consult with the Division on a pre-filing basis to evaluate and address concerns related to state-listed species and their habitats and to further develop a detailed long-term net benefit plan for unavoidable impacts to state-listed species and their habitats.

7-3

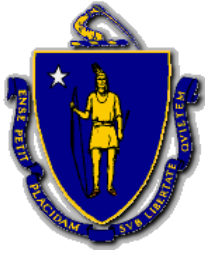
The Division will not render a final decision until the MEPA / NEPA review processes and their associated public and agency comment periods are complete. No alteration to the soil, surface, or vegetation associated with the Project shall occur until the MESA review process is complete. If you have any questions about this letter, please contact Amy Hoenig, Endangered Species Review Biologist, at amy.hoenig@mass.gov or 508-389-6364. We appreciate the opportunity to comment on the Project.

Sincerely,

A handwritten signature in black ink, reading "Everose Schlüter". The signature is fluid and cursive, with the first name "Everose" written in a larger, more prominent script than the last name "Schlüter".

Everose Schlüter, Ph.D.
Assistant Director

cc: Jed S. Merrow, McFarland Johnson
 Geoff Freeman, Airport Director
 Martha's Vineyard Airport Commission
 Edgartown Board of Selectmen
 Edgartown Conservation Commission
 Edgartown Planning Department
 West Tisbury Board of Selectmen
 West Tisbury Conservation Commission
 West Tisbury Planning Department
 DEP Southeast Regional Office, MEPA



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF
ENERGY AND ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENERGY RESOURCES
100 CAMBRIDGE ST., SUITE 1020
BOSTON, MA 02114
Telephone: 617-626-7300
Facsimile: 617-727-0030

Charles D. Baker
Governor

Karyn E. Polito
Lt. Governor

Kathleen A. Theoharides
Secretary

Patrick C. Woodcock
Commissioner

12 March 2021

Kathleen Theoharides, Secretary
Executive Office of Energy & Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02114
Attn: MEPA Unit

RE: Martha's Vineyard Airport Capital Improvement Plan, Martha's Vineyard, EEA #15964

Cc: Maggie McCarey, Director of Energy Efficiency, Department of Energy Resources
Patrick Woodcock, Commissioner, Department of Energy Resources

Dear Secretary Theoharides:

We've reviewed the Notice of Project Change/Draft Environmental Impact Report (NPC/DEIR) for the above project. The proposed project includes renovation and expansion of the existing airport terminal (from 13,000-sf to 22,000-st) and construction of two space-conditioned hangers (12,000-sf each). The project also includes Business Park Lot 34 and 38. Lot 38 is already developed with commercial buildings and Lot 34 will be used for future commercial development.

Executive Summary

The submission was very responsive to our previous comments and is incorporating high-impact emissions mitigation measures into these buildings. These measures include: efficient electrification of space heating, improved envelope, energy recovery, solar readiness, and electric vehicle charging.

For the next submission, we request that the project provide more information about code baseline used and more details about proposed improvements, as described herein. Reported emissions reduction may need some revision.

The next submission should also provide information about mitigation measures which were used on Business Park Lot 38 (now built) and mitigation measures which will be required for Business Park Lot 34.

Currently Proposed Mitigation – Terminal Building and Hangers

For the terminal building and two hangers, the project is proposing the mitigation shown below. “Baseline” means a project built to current code:

	Energy (Kwhrs/yr)		Emissions (tons per year)		
	baseline	proposed	baseline	proposed	reduction
terminal building	470,030	394,670	155	130	16%
hanger 1	277,820	189,750	91	62	32%
hanger 2	125,420	75,460	41	25	40%
total project			287	217	24%

Mitigation is accomplished with efficient electrification (cold climate heat pumps) of space heating, improved envelope, heat recovery, and improved lighting. Some of the above reported numbers may require updating as the Baseline may require some updates.

Mitigation at Business Park Lots 34 and 38

Business Park Lot 34 is currently undeveloped and is planned to be used for future commercial use. The DEIR currently does not include any mitigation commitments for this future development. Unless this lot will be the subject of a future NPC, the next submission should provide more information about GHG mitigation commitments to be placed onto this development.

Recommended mitigation measures for future development at Business Park Lot 34 would be similar to the measures being used for the terminal and hangers. These include: improved envelope, efficient electrification with heat pumps, and energy recovery.

Business Park Lot 38 is already developed with commercial buildings (described as: light industry, storage, and trades). No additional information about these buildings was provided. The next submission should provide information about the GHG mitigation measures that were incorporated into this development.

Codes and Baseline

The terminal expansion and the two hangers have several code pathways available to them:

- 2016 ASHRAE prescriptive pathway
- 2016 ASHRAE Appendix G performance path
- 2018 IECC prescriptive pathway

These pathways have Massachusetts-specific amendments which require reduced lighting power density, mandate minimum envelope performance, require solar readiness, require EV ready wiring, require three additional C406 measures, and other amendments.

The next submission should identify the code pathway used and show that the Baseline incorporates all the amendments, including the three C406 measures. The same C406 measures used in the Baseline should also be used in the proposed. Compliance with C406 measures does not count as GHG mitigation.

Building Envelope

The submission describes incorporating improved envelope and avoiding/minimizing curtain wall. Envelope performance is an essential foundation in a low emissions building.

The next submission should provide the specifications of the code Baseline and Proposed envelope. Specifically, for the terminal building and each of the hangers, provide the following information on vertical wall performance which will quantify the overall, aggregate "UA" improvement over code Baseline:

Vertical Envelope Performance

	IECC Code Min		Proposed	
	%	U	%	U
Insulated (non-spandrel) wall	70	0.064	%	Value
Vision Glass	30	0.380	%	Value
Spandrel wall	0	NA	%	Value
Vertical Aggregate UA		0.077		Value
Improvement over code minimum				%

The above was developed based on the assumption that the hangers and terminal building are steel-framed. This should be confirmed. The next submission should also confirm that the "semi-heated" designation is not being use for either of the hangers.

For all buildings, the next submission should provide information about the proposed roof insulation for each building, and comparison to code Baseline.

Finally, for all buildings, the next submission should provide information about the air infiltration for each building, and how that compares to code Baseline.

Electric Space and Service Water Heating

Efficient electrification of space and water heating is a key mitigation strategy with significant short- and long-term implications on GHG emissions. Massachusetts grid emissions rates continue

to decline with the implementation of clean energy policies that increase renewable electricity sources. The implication is that efficient electric space and water heating with cold climate air source heat pump and VRF equipment have lower emissions than other fossil-fuel based heating options, including best-in-class condensing natural gas or propane equipment.

Space Heating

The submission was responsive to evaluate air source heat pumps and is committing to such systems for the expansion and the hangers. DOER commends the proponent for this commitment.

Service Water Heating (Hot Water)

DOER recommends electric heat pump water heating for all building on this project. The next submission should confirm whether electric heat pump water heating will be used for all buildings.

8-4

Rooftop Solar PV

Rooftop PV can provide significant GHG benefits as well as significant financial benefits. We recommend providing as much rooftop solar PV readiness as possible, in all buildings.

Massachusetts amendments require that about 50% of the roof be made solar ready for all building in this project. As a mitigation measure, we recommend this be increased to 80% for all buildings. The submission should contain scaled roof plans showing anticipated rooftop appurtenances and set asides for solar PV.

8-5

Electric Vehicle (EV) Ready Parking Spaces

EV charging stations are critical for the continual transition towards electric mobility. Even if EV charging stations are not installed during construction, it is critical to maximize EV ready spaces as it is significantly cheaper and easier to size electrical service and install wiring or wiring conduit during construction rather than retrofitting a project later.

We encourage the project to maximize EV ready parking spaces for the project.

8-6

Recommendations for Next Submission

Recommendations are as follows:

1. Confirm code pathway and ensure Baseline building scenarios meet all code requirements including relevant MA amendments. Clearly indicate which three C406 measures are being used in the Baseline. Emissions reduction due to Massachusetts amendments and C406 measures are considered “code required” and do not count as mitigation.

For each building, include a table similar to the example below. For “code value” ensure that the value incorporates any Massachusetts amendments, including Section C406.1.

Measure/Area	Base Code	Proposed	% Change	Comment
AC Efficiency (EER)				
Bldg 1	<i>code value</i>	<i>design value</i>	%	
Bldg 2	<i>code value</i>	<i>design value</i>	%	
ERV Effectiveness (%)				
Bldg 1	<i>code value</i>	<i>design value</i>	%	
Bldg 2	<i>code value</i>	<i>design value</i>	%	
Boiler (% efficiency)				
Bldg 1	<i>code value</i>	<i>design value</i>	%	
Bldg 2	<i>code value</i>	<i>design value</i>	%	
LPD (Watts/sq ft)				
Bldg 1	<i>code value</i>	<i>design value</i>	%	
Bldg 2	<i>code value</i>	<i>design value</i>	%	
(continue to include service water, equipment, etc)				

2. Revise mitigation reduction based on updated baseline analysis, as necessary.
3. Provide information about mitigation measures which were used on Business Park Lot 38 (now built) and mitigation measures which will be required for Business Park Lot 34. We recommend that buildings to be built in Business Park Lot 34 be committed to efficient electrification (heat pumps/VRF) and improved envelope.
4. Separately for each building, develop a vertical “UA” table showing Baseline and Proposed values. Also, provide Baseline and Proposed air infiltration and roof insulation values.
5. Maintain commitments to efficient electric space heating and confirm water heating commitments.

6. Evaluate rooftop solar PV. This should include building roof plans showing location of planned solar and location of roof HVAC equipment and other appurtenances.
7. Maximize EV-ready parking spaces. Confirm commitment to installed EV charging station and EV ready spaces.

Sincerely,



Paul F. Ormond, P.E.
Energy Efficiency Engineer
Massachusetts Department of Energy Resources



Brendan Place
Clean Energy Engineer
Massachusetts Department of Energy Resources



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
5 POST OFFICE SQUARE SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

March 5, 2021

Richard Doucette
Federal Aviation Administration
1200 District Avenue
Burlington, Massachusetts 01803

RE: Martha's Vineyard Airport Proposed Capital Improvement Plan Notice of Project Change/Draft Environmental Impact Report/Environmental Assessment, Martha's Vineyard, Massachusetts (EEA File Number: 15964)

Dear Mr. Doucette:

We are writing in response to the January 15, 2021 Notice of Availability for the Notice of Project Change/Draft Environmental Impact Report/Environmental Assessment (NPC/DEIR/EA) for the Martha's Vineyard Airport Capital Improvement Plan project in Martha's Vineyard, Massachusetts. We submit the following response to the NPC/DEIR/EA in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act and the Safe Drinking Water Act.

The NPC/DEIR/EA describes a number of capital improvement projects at the Martha's Vineyard Airport including: aircraft hangar development; improvements to the existing fuel farm to improve access and safety; airspace vegetation management to remove obstructions to allow for the safe movement of aircraft; reconstruction of Runway 15-33; reconstruction of Taxiway E; terminal improvements; access road improvements; and the establishment of aircraft parking and movement areas. According to the NPC/DEIR/EA the purpose of the project is to "...safely accommodate current and anticipated aviation demand; provide adequate facilities in support of aviation, and provide needed revenue at Martha's Vineyard Airport."

Based on our review of the NPC/DEIR/EA we offer the following comments and recommendations regarding the project for your consideration.

Aquifer Protection

EPA notes that Section 4.4 (Water Resources) does not provide any information about the depth to groundwater or groundwater flow directions.

- Recommendation: We recommend that a map showing groundwater contours and flow directions be provided to better describe the context and existing environment for the

proposed project. This map should show the location of monitoring wells and provide information on how the groundwater contours were developed.

EPA notes that the discussion of past contamination and measures to protect the sole source aquifer from airport operations is limited in the NPC/DEIR/EA.

- Recommendation: We recommend that the discussion in Section 5.2 be expanded to provide more specific information about how the aquifer will be protected. We specifically recommend additional detail regarding how the airport will protect groundwater from runoff, spills, or accidents at the airport.

9-2

Spill Prevention Control and Countermeasure Plan

According to the NPC/DEIR/EA the Spill Prevention, Control and Countermeasure (SPCC) Plan was developed for the Airport in 2002 and updated in 2012.

- Recommendation: Given the location of the proposed project within a Sole Source Aquifer and the extent of construction proposed at the site, EPA recommends that the airport's SPCC Plan be updated prior to construction. For more specific information about requirements with the SPCC rule, refer to www.epa.gov/oil-spills-prevention-and-preparedness-regulations/spill-prevention-control-and-countermeasure-19. Questions regarding the SPCC rule should be directed to EPA's Joe Canzano at canzano.joseph@epa.gov or 617-918-1763.

9-3

Underground Injection Control (UIC) program

EPA's Underground Injection Control (UIC) program is administered by MassDEP and, as such, UIC systems are regulated by MassDEP. Infiltration best management practices (BMPs) used to drain stormwater runoff are regulated as "Class V" underground injection wells under Massachusetts UIC regulations (310 CMR 27.02) if they include any of the following:

- a bored, drilled, or driven shaft, a dug hole, or seepage pit whose depth is greater than its largest surface dimension; or,
- an improved sinkhole; or,
- any subsurface structure that has a soil absorption system (SAS) with a subsurface fluid distribution line and aggregate. Note: This refers to subsurface infiltration enhancement systems but does not include underdrains designed to collect and convey stormwater to a surface outfall or a storm drain network.

Questions about UIC regulations should be directed to Joe Cerutti, the MassDEP UIC Program Coordinator, at joseph.cerutti@state.ma.us or 617-292-5859.

Recommendations:

- The final EIR/EA should identify any infiltration systems that may require registration under MassDEP's UIC program.
- EPA strongly recommends that any underground injection, including stormwater infiltration systems that are part of the proposed project, be monitored closely and maintained effectively. The final EIR/EA should provide a description of proposed monitoring and maintenance plans for any systems proposed for the project.

9-4

Coordination with Oak Bluffs Water District

As part of our review of the NPC/DEIR/EA we coordinated with the Oak Bluffs Water District. Based on our coordination it is our understanding that there has been no direct communication to date between the project proponent and the water district in association with the project proposal.

- Recommendation: We strongly encourage the airport to coordinate with the Oak Bluffs Water District regarding increased water demands from the project and safeguards for the Zone II groundwater protection area located on the northern section of the airport property. Michael Silva is the Superintendent of the Oak Bluffs Water District and he can be reached at (508) 693-5527 or msilvia@oakbluffswater.com.

9-5

Sole Source Aquifer Review

In conjunction with our review of the NPC/DEIR/EA we also reviewed the project under the 1974 Safe Drinking Water Act (SDWA) Section 1424(e). The SDWA provides EPA authority to review proposed projects within Sole Source Aquifers. Any project receiving federal funding in a designated Sole Source Aquifer requires EPA review. In this case EPA conducted a Sole Source Aquifer Review of the Martha's Vineyard Airport project because a portion of the funding for the project is being supplied by the Federal Aviation Administration. The Martha's Vineyard Sole Source Aquifer was designated on February 5, 1988 (Federal Register Notice: 53 FR 3451). For more information: <https://www3.epa.gov/region1/eco/drinkwater/solemart.html>

Provided that the project meets all applicable federal, state and local environmental protection standards, EPA does not believe that the Martha's Vineyard Airport projects described in the NPC/DEIR/EA will pose a significant threat of ground water contamination which could pose a health hazard. Please note, however, that EPA reserves the right to inspect and/or take enforcement action pursuant to the Clean Water Act, and other applicable laws. This includes the right to seek penalties, for any past, current, or future violations detected at the Martha's Vineyard Airport.

We would like to be kept informed about any activities that might affect the Sole Source Aquifer during project construction or operation. Please communicate directly with the EPA Region 1 Sole Source Aquifer Coordinator, Kira Jacobs. She can be reached at jacobs.kira@epa.gov or 617-918-1817.

EPA appreciates the opportunity to review the Martha's Vineyard Airport NPC/DEIR/EA. We look forward to the opportunity to review the final EIR/EA when it is available. If you have any questions, please contact me at 617-918-1025.

Sincerely,

Timothy Timmermann
Director, Office of Environmental Review

cc:

Alexander Strysky, MEPA Office
Jed Merrow, McFarland Johnson

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX B

Distribution List

DISTRIBUTION LIST

Distribution of the DEIR/EA follows the requirements of MEPA regulations at 301 CMR 11.00 and FAA guidance regarding NEPA regulations, per FAA Orders 1050.1F and 5050.4B. This distribution list follows below.

Federal

Richard Doucette, Environmental Program
Manager
Federal Aviation Administration-New England
Regional Office
1200 District Avenue
Burlington, MA 01803

Michelle Ricci
Project Manager/Team Planner for
Massachusetts
Federal Aviation Administration-New England
Regional Office
1200 District Avenue
Burlington, MA 01803

Timothy L. Timmermann, Director
Office of Environmental Review
EPA New England-Region 1
5 Post Office Square, Suite 100
Mail Code 06-3
Boston, MA 02109-3912

Kira Jacobs
Drinking Water Quality and Protection Unit
U.S. EPA (OEP 6-2)
John W. McCormack Building
5 Post Office Square
Boston, MA 02109

State

Attn: MEPA Office
The Honorable Kathleen A. Theoharides,
Secretary
Executive Office of Energy and Environmental
Affairs
100 Cambridge Street, Suite 900
Boston MA 02114

Attn: MEPA Coordinator
Commissioner's Office
Massachusetts Department of Environmental
Protection
One Winter Street
Boston MA 02108

Attn: MEPA Coordinator
Jonathan Hobill
Regional Engineer
Massachusetts Dept. of Environmental
Protection-Southeast Office
20 Riverside Drive
Lakeville, MA 02347

Lionel Lucien
Massachusetts Department of Transportation
Public/Private Development Unit
10 Park Plaza, Suite 4150
Boston MA 02116

Mary-Joe Perry, District Highway Director
Massachusetts Department of Transportation
Highway District 5 Office
1000 County Street
Taunton MA 02780

State (continued)

Jeffrey DeCarlo, Ed.D.
Aeronautics Administrator
Massachusetts Dept. of Transportation-
Aeronautics Division
Logan Office Center
1 Harborside Drive, Suite 205N
Boston, MA 02128

Nate Rawding
Supervisor
Environmental Department
Massachusetts Dept. of Transportation-
Aeronautics Division
Logan Office Center
1 Harborside Drive, Suite 205N
East Boston, MA 02128

William Francis Galvin, Chair
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125-3314

Attn: Project Review Coordinator
Lisa Berry Engler, Director
Massachusetts Coastal Zone Management
251 Causeway Street, Suite 800
Boston, MA 02114

Stephen McKenna
Regional Coordinator
Massachusetts Coastal Zone Management-
Cape Cod and Islands
3195 Main Street, P.O. Box 220
Barnstable, MA 02630

John Logan
Environmental Review
Massachusetts Division of Marine Fisheries
251 Causeway Street, Suite 400
Boston, MA 02114

Kerry Allard
Permitting Coordinator
Massachusetts Division of Marine Fisheries-
Martha's Vineyard Office
57 Shirley Street, Oak Bluffs, MA 02557

Everose Schluter
Assistant Director
Massachusetts Natural Heritage and
Endangered Species Program
1 Rabbit Hill Road
Westborough, MA 01581

Massachusetts Dept. of Conservation and
Recreation
Main Office
251 Causeway Street, 9th Floor
Boston, MA 02114

Ron O'Connor, Director
Massachusetts Dept. of Public Health
Office of Local and Regional Health
250 Washington Street
Boston, MA 02108

Attn.: Paul Ormond, Energy Efficiency
Engineer
Massachusetts Department of Energy
Resources
100 Cambridge St., Suite 1020
Boston, MA 02114

Attn.: Brendan Place, Clean Energy Engineer
Massachusetts Department of Energy
Resources
100 Cambridge St., Suite 1020
Boston, MA 02114

Municipal

Martha's Vineyard Museum
151 Lagoon Pond Road
Vineyard Haven, MA 02568

Christopher Scott, Chair
Edgartown Historic District Commission
PO Box 5158
Edgartown, MA 02539

Sean Conley, Chair
West Tisbury Historic District Commission
PO Box 287
West Tisbury, MA 02575

Edgartown Planning Board
PO Box 5130
Edgartown, MA 02539

Virginia Jones, Chair
West Tisbury Planning Board
1059 State Road
PO Box 278
West Tisbury, MA 02575

Margaret Serpa, Chair
Edgartown Board of Selectmen
PO Box 5158
Edgartown, MA 02539

Cynthia Mitchell, Chair
West Tisbury Board of Selectmen
PO Box 278
West Tisbury, MA 02575

Edward Vincent, Jr., Chair
Edgartown Conservation Commission
PO Box 5130
Edgartown, MA 02539

Tara Whiting-Wells, Chair
West Tisbury Conservation Commission
1059 State Road
PO Box 278
West Tisbury, MA 02575

Matt Poole, Health Agent
Edgartown Health Department
PO Box 1596
Edgartown, MA 02539

Omar Johnson, Health Agent
West Tisbury Board of Health
PO Box 278
West Tisbury, MA 02575

Edgartown Public Library
26 West Tisbury Road
Edgartown, MA 02539

Alexandra Pratt, Library Director
West Tisbury Library
1042 State Road
Vineyard Haven, MA 02568

Edgartown Highway Department
165 Meetinghouse Way
Edgartown, MA 02539

Jennifer Rand
West Tisbury Highway Department
1059 State Road
West Tisbury, MA 02575

Tribal

Cheryl Andrews-Maltais
Tribal Council Chairwoman
Wampanoag Tribe of Gay Head
20 Black Brook Road
Aquinnah, MA 02535

*Martha's Vineyard Airport –Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment*

Airport

Bob Rosenbaum, Chair
Martha's Vineyard Airport Commission
71 Airport Rd
West Tisbury, MA 02575

Geoff Freeman, Airport Director
Martha's Vineyard Airport Commission
71 Airport Rd
West Tisbury, MA 02575

Other

Mike Mauro
Transportation Program Manager
Martha's Vineyard Commission
P.O. Box 1447, Oak Bluffs, MA 02557

Adam Turner
Executive Director
Martha's Vineyard Commission
P.O. Box 1447, Oak Bluffs, MA 02557

E. Heidi Ricci, Director of Policy
Mass Audubon
208 South Great Road
Lincoln, MA 01773

Commenters on ENF (not listed above)

Agnoli, Jeffrey

Andersen, Angela

Bailey, Paul

Balaban, Jason

Baldwin, May

Becker, Oliver

Becker, Valerie and John

Brooks, Geraldine

Brown, Wesley

Carnie, Elizabeth – Robinson, Odin –
Robinson, Runar Finn

DeWitt, Linda

Edison, Miranda

Eger, Holly Hodder

Feinberg, Marilyn

Freedman, John

Galland, Nicole

Gardner, K.

Gargan, Edward A.

Green, Robert M.

Hall Jr., Benjamin Lambert

Heubscher, Robert

Hodgson, Thomas

Horwitz, Nathaniel Brooks

Horwitz, Tony

Johnson, Luanne – BiodiversityWorks,
Director/Wildlife Biologist

Kane, Cindy

Kassel, Barbara

McCarron, Petra Lent

Mekuria, Salem

Moorman, Hunter

Murphy, Susan B.

Nessen, Beatrice

O'Neill, Brendan – Vineyard Conservation
Society (VCS) Executive Director

Parkhill-Day, Dana

Pearl, Zeev

Ricci, Heidi – Mass Audubon Advocacy
Department (Assistant Director)

Richheimer, Robert

Richheimer, Skip

Sudarsky, Matthew

Taylor, Jo-Ann – Martha's Vineyard
Commission (MVC) MEPA Review Coordinator

Vogt, Klaus D.

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX C

List of Preparers

LIST OF PREPARERS

The principal parties preparing this Draft Environmental Impact Report / Draft Environmental Assessment are listed below.

Organization, Name, Title,	Project Role
Martha's Vineyard Airport	
Geoff Freeman, Airport Director	Provided airport information, reviewer
Federal Aviation Administration	
Richard Doucette, Environmental Program Manager	General consultation, reviewer
Michelle Ricci, Environmental Projection Specialist	General consultation
John Merck, Civil Engineer / Project Manager	General consultation, airport engineering
MA Department of Transportation	
Thomas Mahoney, Director of Airport Engineering	General consultation
Owen Silbaugh, Senior Project Manager	General consultation, airport engineering, reviewer
Nathan Rawding, Project Manager / Senior Environmental Analyst	General consultation, reviewer
Michael Garrity, Environmental Analyst	General consultation, reviewer
McFarland-Johnson, Inc.	
Jed Merrow, CWS, Environmental Project Manager	Project manager, principal author
Richard Lasdin, PE, Project Engineer	Engineering tasks
Matthew O'Brien, PE, Project Engineer	Engineering tasks
Robert Luchini, Assistant Engineer	Contributor in design and estimates
Dhruv Patel, Project Engineer	Contributor in design
Sydney Seney, Junior Engineer	Contributor for alternatives figures and impact calculations
Jordan Tate, Environmental Analyst	Contributor for various subject areas
Jennifer Zorn, Senior Environmental Planner	Copy editor/proofreader
GZA GeoEnvironmental	
Steven Riberdy, Senior Ecologist	Ecological and rare species studies
Fennick McCredie Architecture	
Jonathan McCredie, Principal	Terminal design
Ashley Cawley, Senior Associate	Terminal design
Public Archaeology Lab, Inc.	
Holly Herbster, Senior Archaeologist	Archaeological studies
CLEAResult Consulting Inc	
Graham Smith, CEM, Project Engineer	Energy and greenhouse gas modeling
James Domanski, Technical Energy Manager	Energy and greenhouse gas modeling

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX D

Energy Model Documentation

Martha's Vineyard Terminal Expansion and Additional Hangars

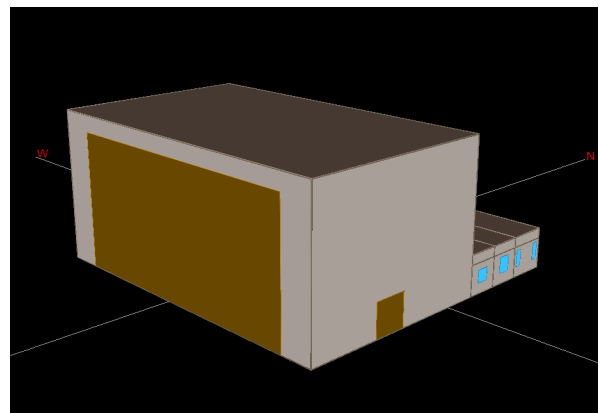
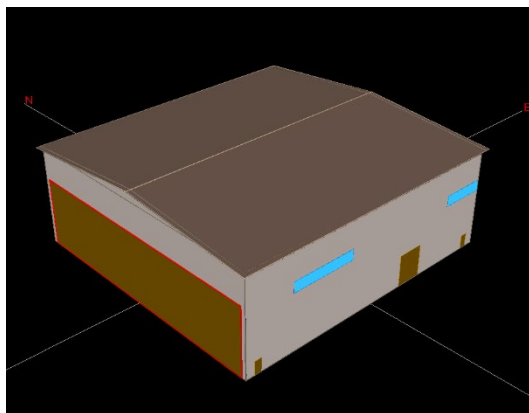
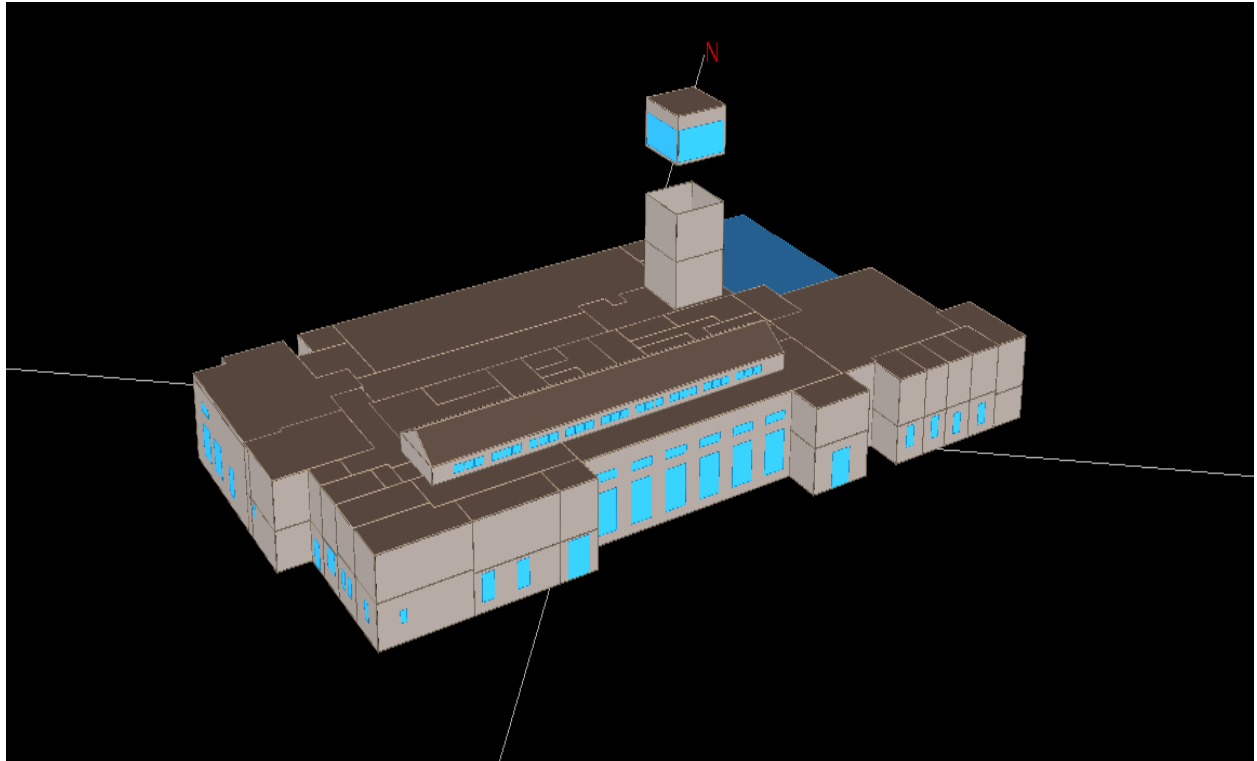


Table of Contents

Contents

Martha's Vineyard Terminal Expansion and Additional Hangars	1
Table of Contents	2
Table of Figures	2
Executive Summary	4
Terminal Energy Conservation Measures (ECMs).....	4
Facility Description	6
Analysis Methodology and Baseline Design Description	6
Terminal Expansion	7
Baseline Case – Electric Heat	7
Energy Conservation Measures	9
ECM#10 – Proposed Design (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Lighting Controls)	9
ECM#11 - C406 Comparison – Terminal Expansion.....	13
Hangars	16
Energy Conservation Measures	17
Hangar 1.....	17
Baseline and Lighting	17
Hangar 2.....	18
Baseline, Lighting Upgrades and VRF Upgrades.....	18
Appendix A:	19
Appendix B:	21
Appendix C:	29
Appendix D:	30
Appendix E:	31

Table of Figures

Figure 1: Terminal Expansion Results	4
Figure 2. EUI and EUI Savings (kbtu/sf) Proposed, C406 and Baseline	5
Figure 3. GHG (lbs/ CO ₂ e) Produced and Saved by Baseline and ECMs.....	5
Figure 4. Electric Consumption and Savings by ECM and Baseline.....	6
Figure 5. Baseline Electric End-Use Consumption - kWh x 1000	7
Figure 6. Greenhouse Gas Emissions by End Use Baseline Terminal Expansion	8

Figure 7. Electric End-Use Consumption - kWh x 1000 ECM 10	9
Figure 8. GHG lbs/ CO ₂ e emissions and savings from ECM 10.....	10
Figure 9. EMC 10 electric consumption, savings and baseline kWh x 1000	10
Figure 10: Proposed Building End Use GHG.....	12
Figure 11: C406 Options kWh End Use Consumption.....	13
Figure 12: GHG lbs/ CO ₂ e emissions and savings from ECM 11	14
Figure 13: EMC 11 electric consumption, savings, and baseline kWh x 1000	14
Figure 14: C406 Requirements modeled End Use GHGs	15

Executive Summary

This study explored the expansion of the Martha's Vineyard Airport which includes the addition of space to the existing terminal building as well as the addition of two hangars to the site. The investigation created baseline models and potential energy conservation measures that were feasible for the project to employ to mitigate the increased load associated with the new spaces.

A brief summary of the proposed building and how it compares to the baseline code and baseline code with the IECC C406 requirements are provided below.

Terminal Energy Conservation Measures (ECMs)

ECM#10 – Proposed Design (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Lighting Controls)

The final ECM is a combination of several of the ECMs that are typically employed together. This ECM combines envelope measures with improved HVAC and lighting. The whole building approach of combining the ECMs typically yields the greatest synergies and highest savings.

ECM#11 – C406 Compliance Options (Lighting, Water Heating, HVAC Improvement)

The final ECM is a combination of several of the ECMs that are typically employed together and is reflective of the Massachusetts Code compliance requirement for the implementation of three IECC Section C406 Additional Efficiency Package Options. This ECM combines improved water heating measures with improved HVAC and lighting..

The building comparisons are done using a common metric for benchmarking buildings against one another. This metric is EUI otherwise known as Energy Use Intensity (EUI). EUI uses kbtu divided by the building or building zone square feet. The reason that these units are used is because both electric and gas can be converted into this uniform unit of measurement and show the total energy needed to meet all the loads that a building has. In this study all units of energy consumed by the buildings are shown as kWh and kbtu/sf or EUI for electricity. The use of gas was eliminated for the presented data in the study.

Terminal	EUI	kWh	GHG Elec lbs/CO ₂ e	Savings – EUI (kbtu/sf/yr)	Savings - kWh	Savings GHG Elec lbs/CO ₂ e	Savings by %
Baseline	67.68	451,060	296,797.48	0	0	0	
ECM10 - Combined Proposed (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Daylighting)	58.57	390,360	256,856.88	9.11	60,700.00	39,940.60	13%
ECM 11 - C406 Options - Combined (HVAC Improved 10% Lighting Improved 10%, HPWH)	65.52	436,720	287,361.76	2.15	14,340.00	9,435.72	3%

Figure 1: Terminal Expansion Results

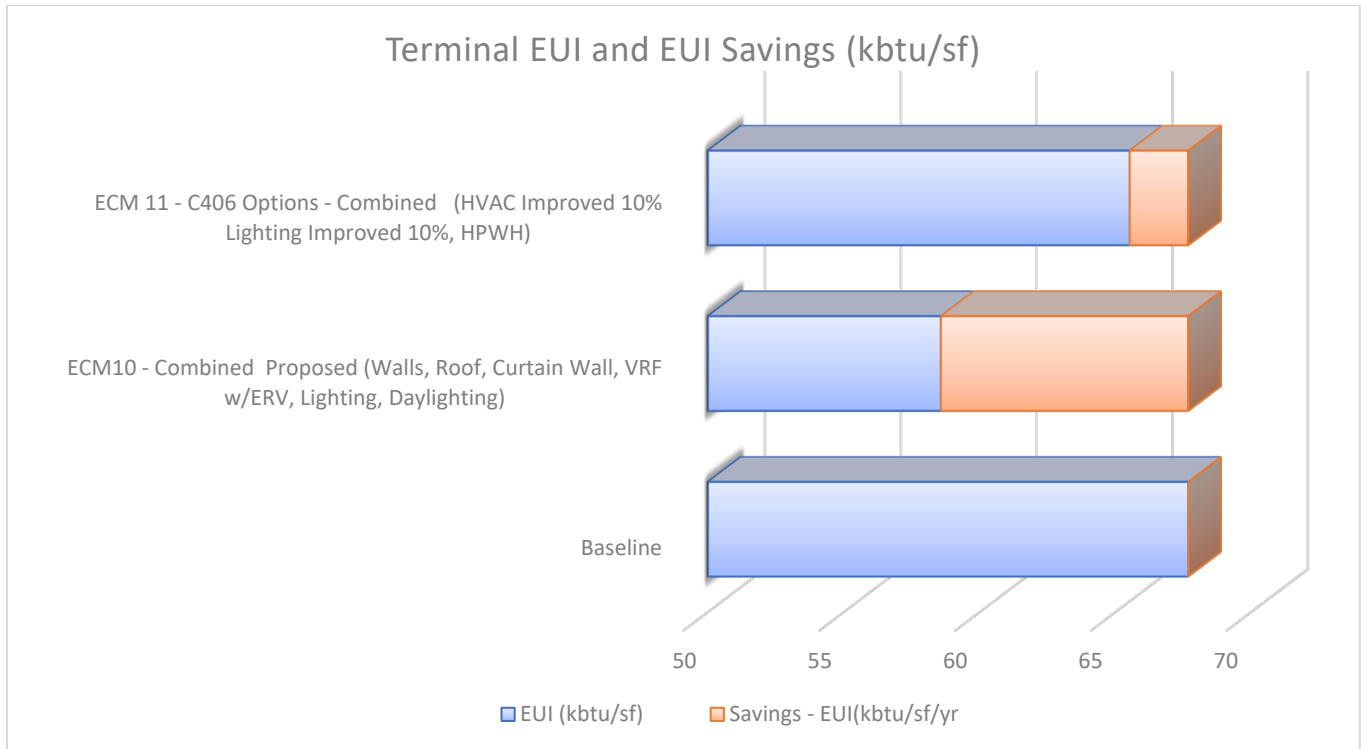


Figure 2. EUI and EUI Savings (kbtu/sf) Proposed, C406 and Baseline

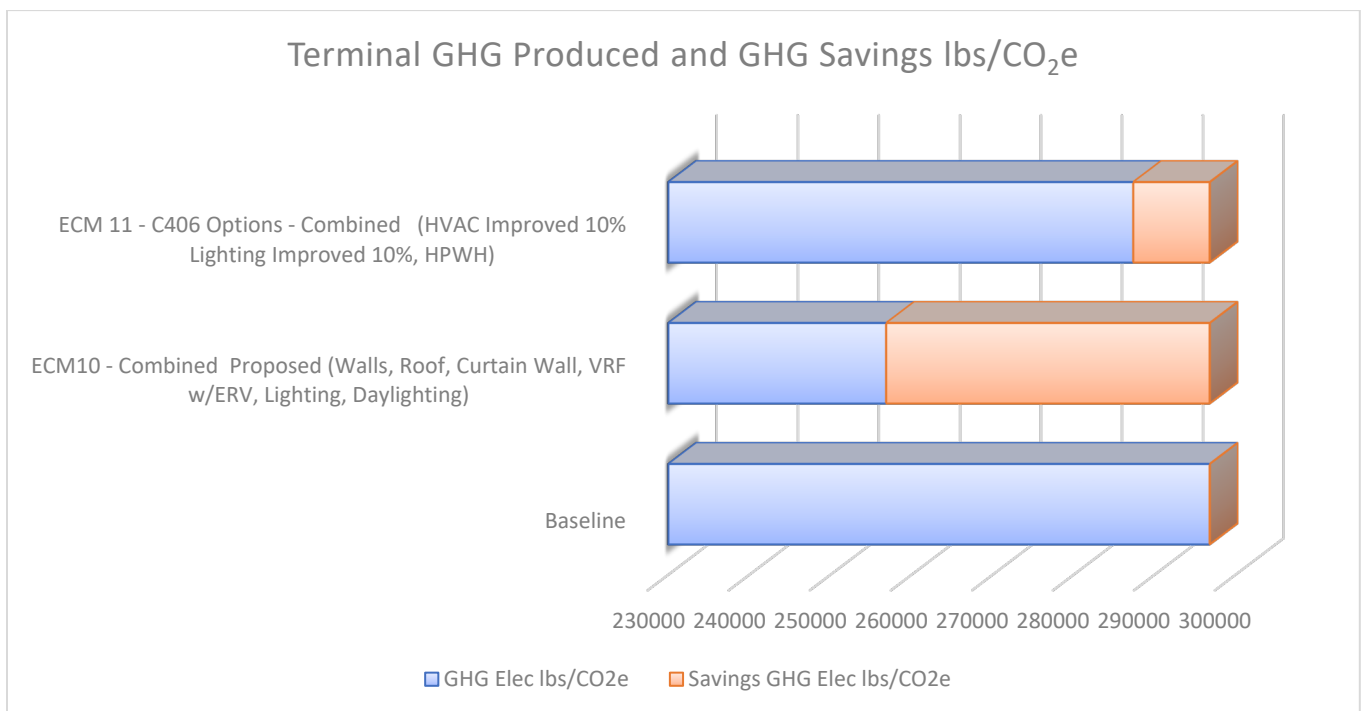


Figure 3. GHG (lbs/ CO₂e) Produced and Saved by Baseline and ECMs

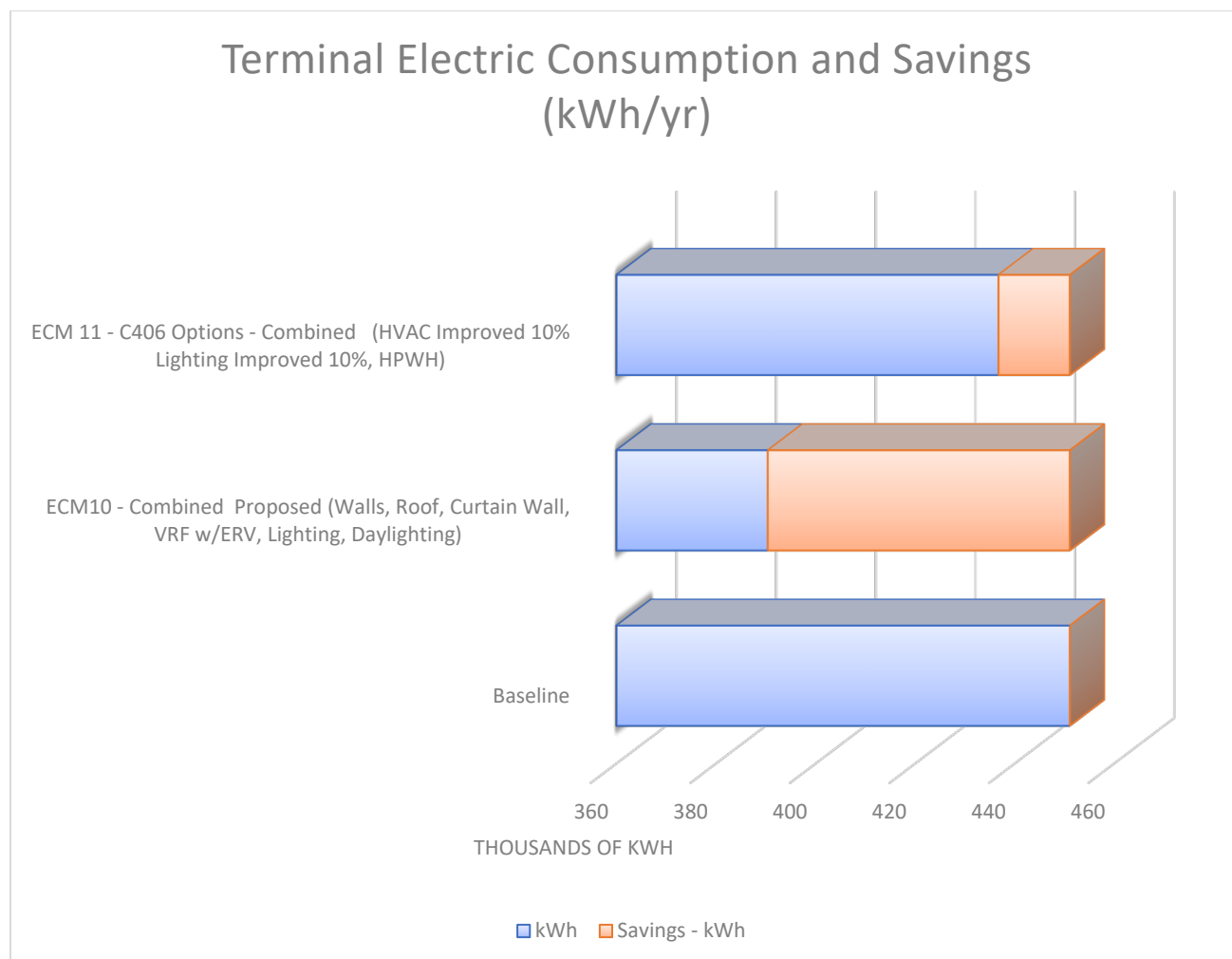


Figure 4. Electric Consumption and Savings by ECM and Baseline

Facility Description

The facility that is being evaluated is primarily the airport terminal at Martha's Vineyard, however there are two new hangars that are planned to be erected on the same site. The overall impacts of the expanding the airport terminal from its existing 13,000 square feet to being around 22,000 square feet and adding the new hangars which will have around 20,000 combined square feet are to be evaluated for the energy and greenhouse gas (GHG) impacts.

Analysis Methodology and Baseline Design Description

To analyze future energy consumption patterns, greenhouse gas generation and the efficiency of the energy conservation measures considered for Martha's Vineyard Airport, computer models of the facilities were developed and building consumption simulations were performed using the eQuest building analysis program. eQuest uses the latest DOE-2.2 building energy analysis software as its calculating engine. This program permits modeling of a variety of building types and components including complex building geometry, lighting systems, HVAC systems, central plant equipment, and utility rate structure.

The eQuest models were generated utilizing the existing documentation from the airport design and construction combined with the drawing files for the planned expansion of the airport and additional hangars. These two sources provided the needed information to develop the geometry and building shell for both the existing portion of the project and the planned expansion. The baseline model utilized ASHRAE 90.1-2016 Appendix G guidance to determine the inputs for the new building and where assumptions were required for the existing building. The analysis used local weather associated with Martha's Vineyard in TMY2 format. TMY weather data is known as typical meteorological year (TMY) data, which is an average of the weather data from 1969 to 1990. This data type is used because it is often a good proxy for how a building will perform under the historical weather conditions. Some studies use TMY3 or even predictive weather data sets to attempt to better predict how a building will perform in the future, however this study did not have access to predictive data models for the site specific location and therefore relied on the TMY2 data.

Terminal Expansion

Baseline Case – Electric Heat

The baseline model was built using the existing conditions of the current Martha's Vineyard Airport Terminal based off the drawings from the initial construction of the building. The new expansion of the building aligns with ASHRAE 90.1 -2016 and/or IECC 2018 prescriptive values for the building properties. Various assumptions were made in the development of the model to complete the HVAC equipment and lighting power densities.

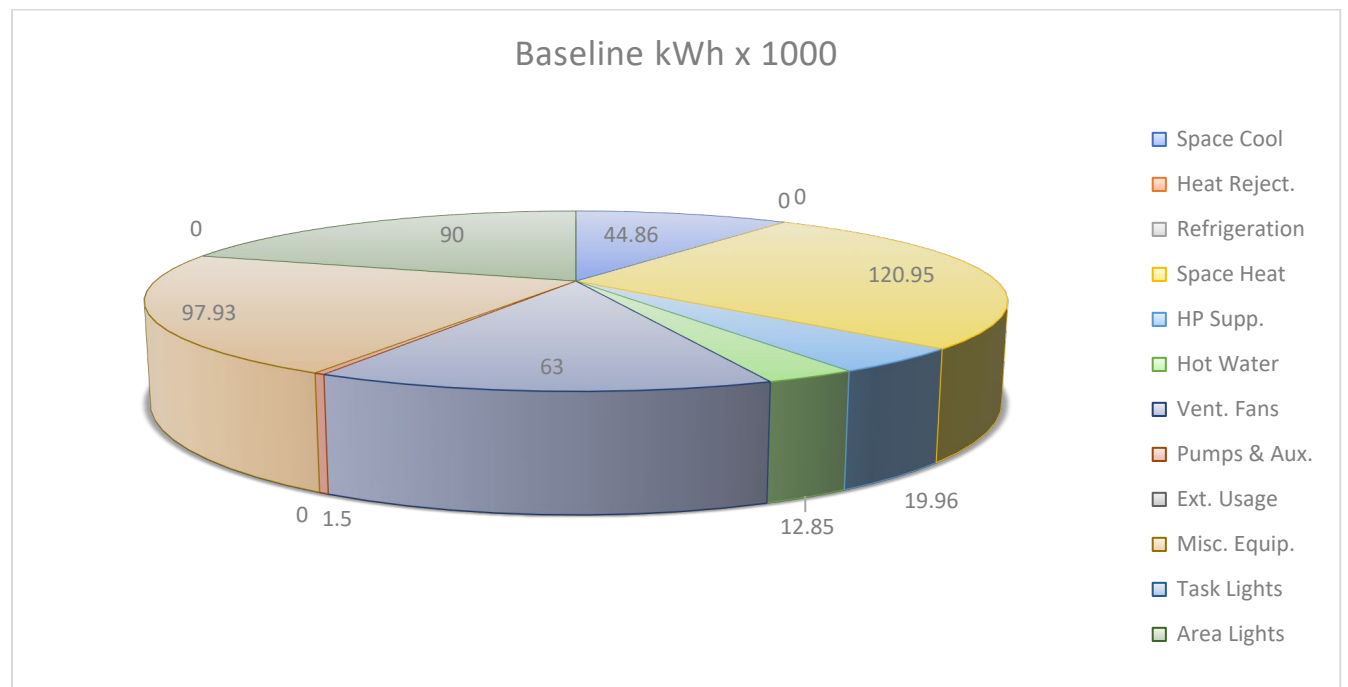


Figure 5. Baseline Electric End-Use Consumption - kWh x 1000

As seen in Figure 5. Baseline Electric End-Use Consumption - kWh x 1000 the largest portions of the building's consumption are associated with heating (120,950 kWh), lighting (90,.000 kWh), equipment

(97,930 kWh) ventilation (66,340 kWh), cooling (44,860 kWh), supplemental heat (19,960 kWh) and hot water (12,850 kWh) in that order.

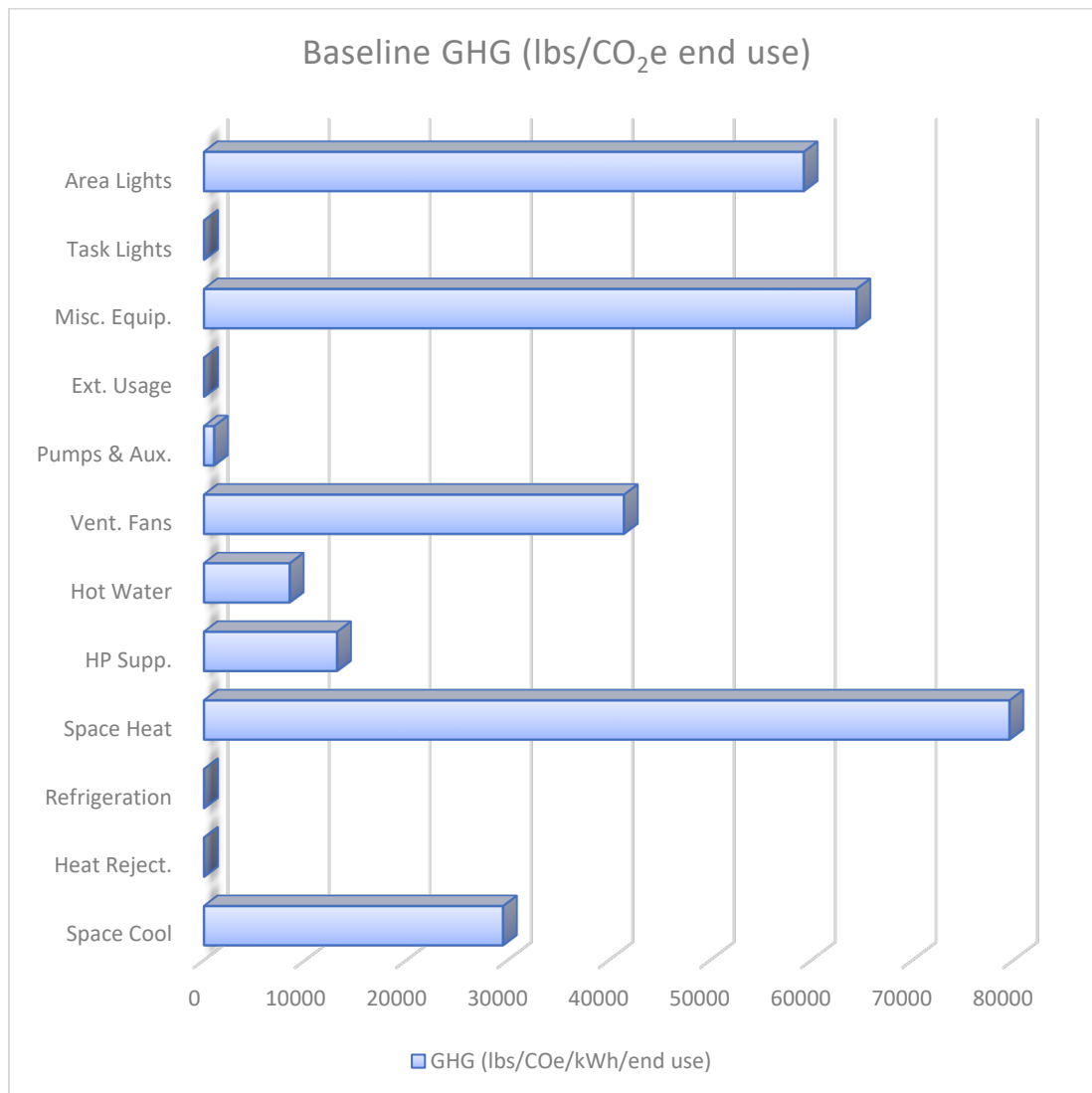


Figure 6. Greenhouse Gas Emissions by End Use Baseline Terminal Expansion

The greenhouse gas emissions associated with the baseline building and all the modeled end-uses can be seen in Figure 6. Greenhouse Gas Emissions by End Use Baseline Terminal Expansion. Figure 6. Greenhouse Gas Emissions by End Use Baseline Terminal Expansion, one can see that space heating lighting and equipment are the major energy consumers and greenhouse gas contributors.

Energy Conservation Measures

ECM#10 – Proposed Design (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Lighting Controls)

Summary – Measure Description

This measure is a combination of the most impactful or the most likely ECMs implemented to simulate the interactive effects of how they will impact the building performance. The measures included in this bundle are improved walls, roof, curtainwall, HVAC and lighting. Each of the measures that are applied in this combination were modeled independently as prior ECMs for this study.

Energy Use, Savings and GHG Impacts

The energy savings associated with the ECM10 simulation was 13% energy savings over the baseline model. With the combined measures the total kWh savings is 60,700 kWh, and the GHG reductions are 39,940 lbs of CO₂e. The end use consumption is visible in Figure 7. Electric End-Use Consumption - kWh x 1000 ECM 10 for heating the building used 31,230 kWh, cooling was 29,890 kWh and ventilation was 122.49 kWh, which was a significant increase over the baseline ventilation kWh. The lighting reduction was 10,420 kWh going from 90,000 kWh to 79,580 kWh as seen in Figure 7.

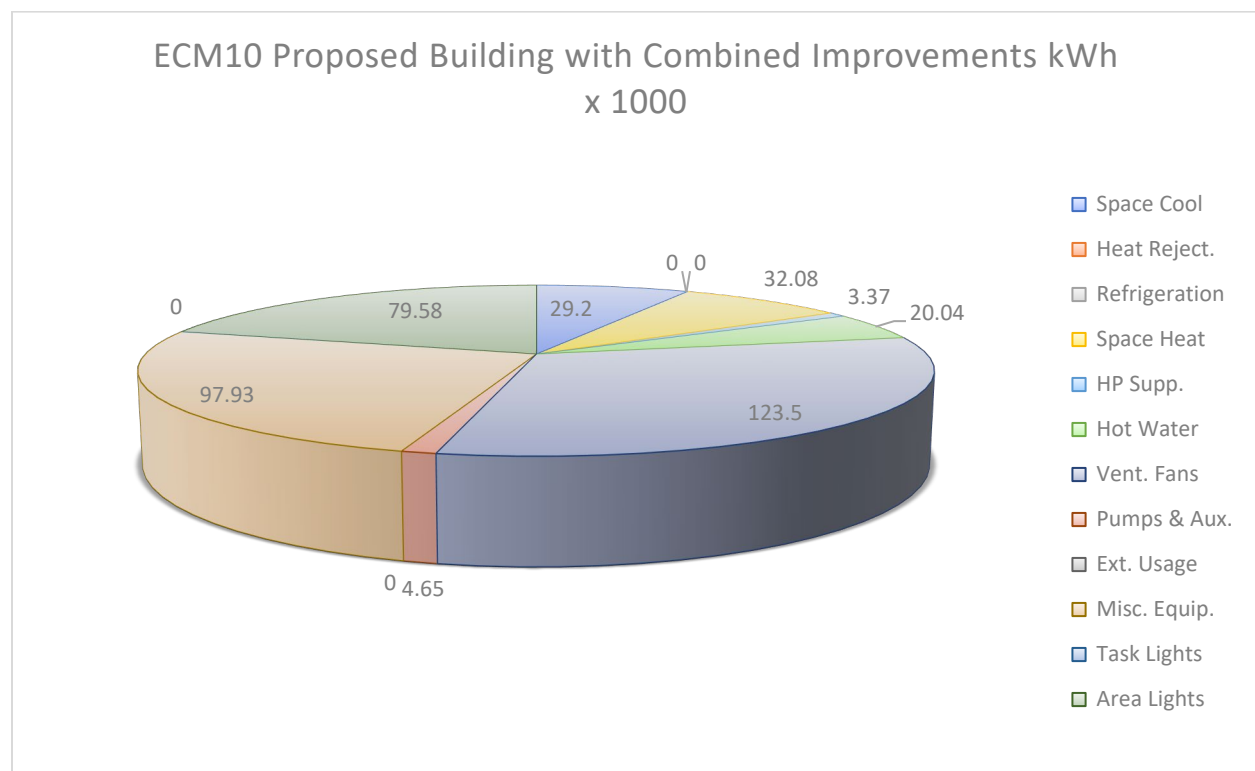


Figure 7. Electric End-Use Consumption - kWh x 1000 ECM 10

The total GHG produced from this ECM was 294,642.47 lbs of CO₂e and the building as designed here saved 56,260 lbs of CO₂e as seen in Figure 8. GHG lbs/ CO₂e emissions and savings from ECM 10.

In Figure 9. EMC 10 electric consumption, savings and baseline kWh x 1000 one can see the incremental improvement in the kWh from the combined measures.

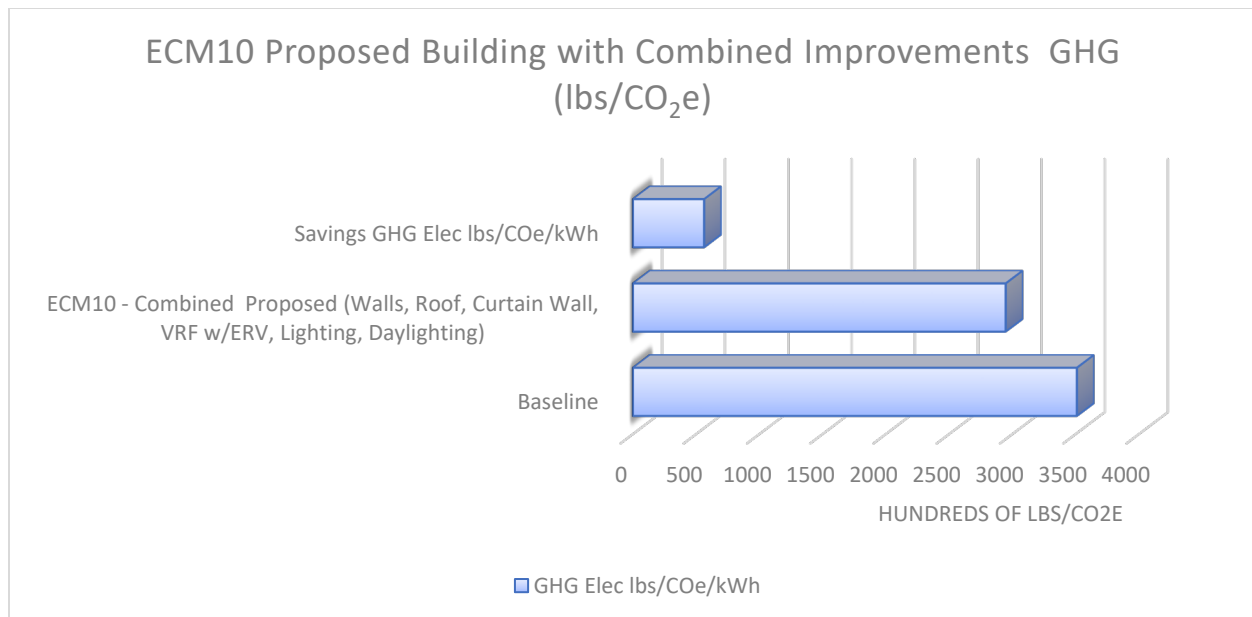


Figure 8. GHG lbs/ CO₂e emissions and savings from ECM 10

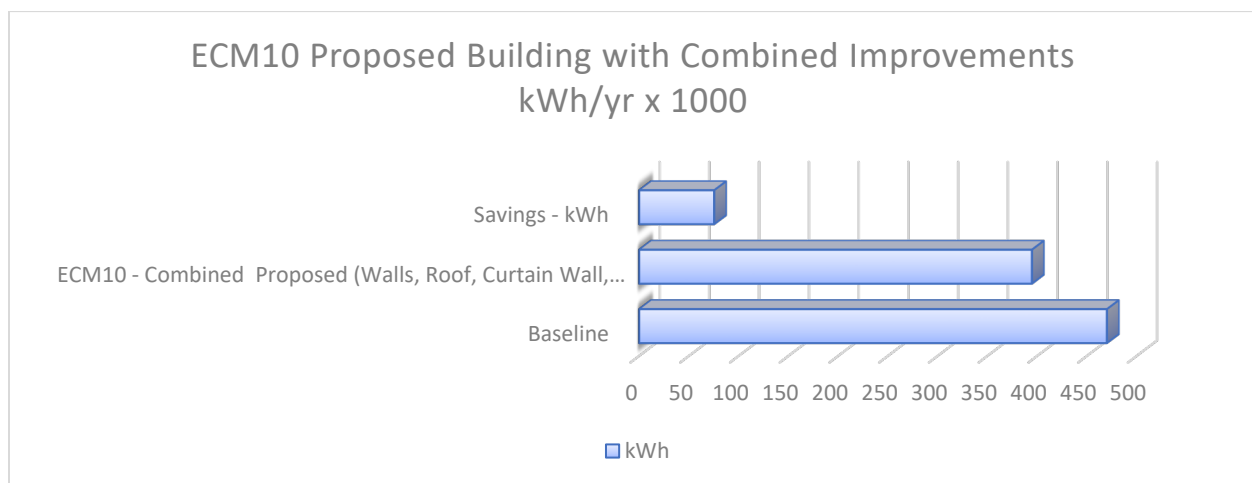


Figure 9. EMC 10 electric consumption, savings and baseline kWh x 1000

Baseline Condition

The baseline condition for this measure is the terminal building with a standard ASHRAE 90.1 envelope and heat pump. All other conditions for the building are the same as the baseline building.

Calculation Methodology

The savings associated with this ECM are determined by comparing the baseline unadjusted with the combined ECMS from the previous models referenced throughout the study.

The improved HVAC was modeled as Installing Variable refrigerant flow system to heat and cool the existing terminal and the expansion for the new terminal section along with a basic 75% effective

sensible and 70% latent energy recovery ventilator. The VRF system is assumed to be a Daikin system for the eQuest model. The curves associated with the Daikin systems were used in the model.

The addition of daylight controls to either the ASHRAE LPD baseline efficiency lighting or improved lighting density spaces can improve on the overall savings of the project. Adding daylight sensors to ensure dimming of the lights in the areas that have windows and access to natural light will help save energy by using less power at each fixture. These sensors will need to be properly calibrated and ensured they are programmed correctly. The simulations were limited in this analysis to the daylighting controls. Additional controls could be added for occupancy or vacancy; however, the scope of this ECM was limited to only one type of control. Daylighting 30% minimum power and light fraction dimming.

Improved lighting efficiency in a building provides the benefit of lower electric consumption for that specific end use as well as non-energy benefits of reduced costs associated with maintenance and replacement lamps. The EEM for lighting improvement was modeled as a 20% reduction in LPD, which is lighting power density measured as watts per square foot of illuminated space from the ASHRAE 90.1-2016 baseline.

The lighting controls improvement was modeled as the installation of daylight sensors in the large perimeter areas of the terminal including the existing and the expansion.

The improved envelope and curtainwall upgrades from the baseline condition provide a better insulated shell to decrease heating and cooling loads. The insulation values associated with the exterior wall assembly of an improved shell were modeled as an ASHRAE Table A 3.3 Assembly for Steel-Frame Walls. The overall U-Factor for the improved wall in the model is 0.04. This represents an advanced framed 24" O.C. steel frame wall that is a 6 inch cavity depth insulated to R-21 and has exterior continuous insulation of R-14. The roof insulation would be upgraded from the above deck insulation of R-30 with a U-factor of 0.032 to be a U-factor of 0.022 or R-45 equivalent. The improvements to the curtainwall include a lower U-value for the glass, a greater solar heat gain coefficient (SHGC) and a thermally broken aluminum frame. The glazing used in the model is from the library and is specifically; 2667 - Center of Glass U-0.29 / SHGC – 0.29 with an NFRC U value – Glass + Frame equal to U- 0.4.

The improved model also utilizes a heat pump water heater for the service water heating throughout the building. This measure shows no improvement for this model due to the EIR used in the model. It is assumed that the savings would be similar to the EEM 11 water heating load reduction.

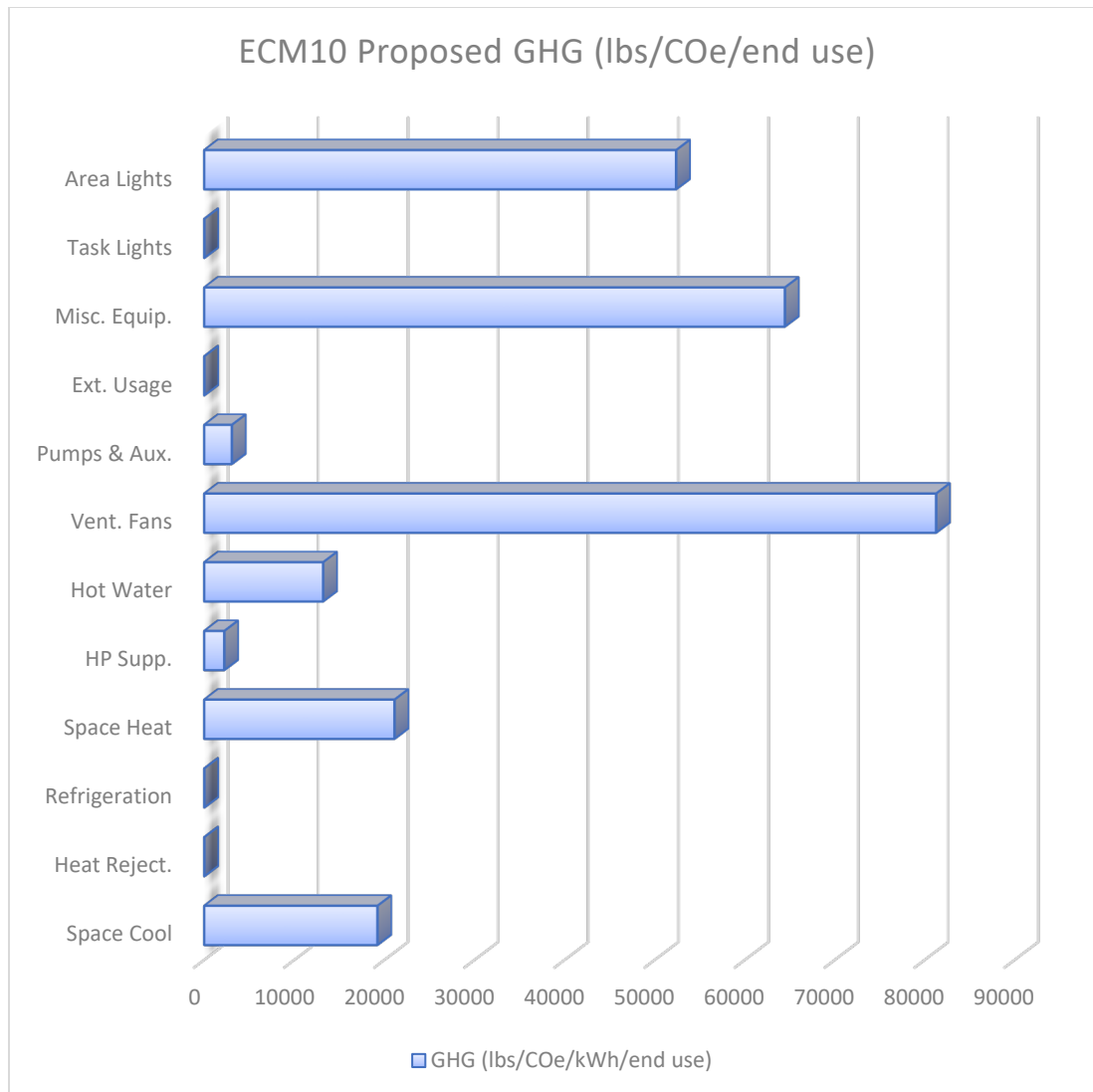


Figure 10: Proposed Building End Use GHG

ECM#11 - C406 Comparison – Terminal Expansion

Summary – Measure Description

The IECC 2018 C406 requirements for Massachusetts stipulate that a new construction project must implement three of the eight options that are available for energy efficiency. The options used in ECM 11 are a 10% reduction in lighting power density done on a space-by-space case, improved HVAC equipment that is 10% more efficient in heating and cooling as per Table C403.3.2(2) in IECC 2018 as well as improved service hot water in the form of heat pump water heaters. The facility has an on-site food prep kitchen and restaurant that allows for claiming the service hot water improvement as an option. While the implementation of these measures together yielded savings in kWh and GHGs it was the improvement of only 3% was well below that of the proposed case.

Energy Use, Savings and GHG Impacts

The energy savings associated with the ECM11 simulation was 3% EUI savings over the baseline model. With the combined measures the total kWh savings is 14,340 kWh, and the GHG reductions are 9,435 lbs of CO₂e. The end use consumption is visible in Figure 11: C406 Options kWh End Use Consumption for heating the building used 108,820 kWh, cooling was 44,620 kWh and ventilation was 71,630 kWh, which was a significant increase over the baseline ventilation kWh.

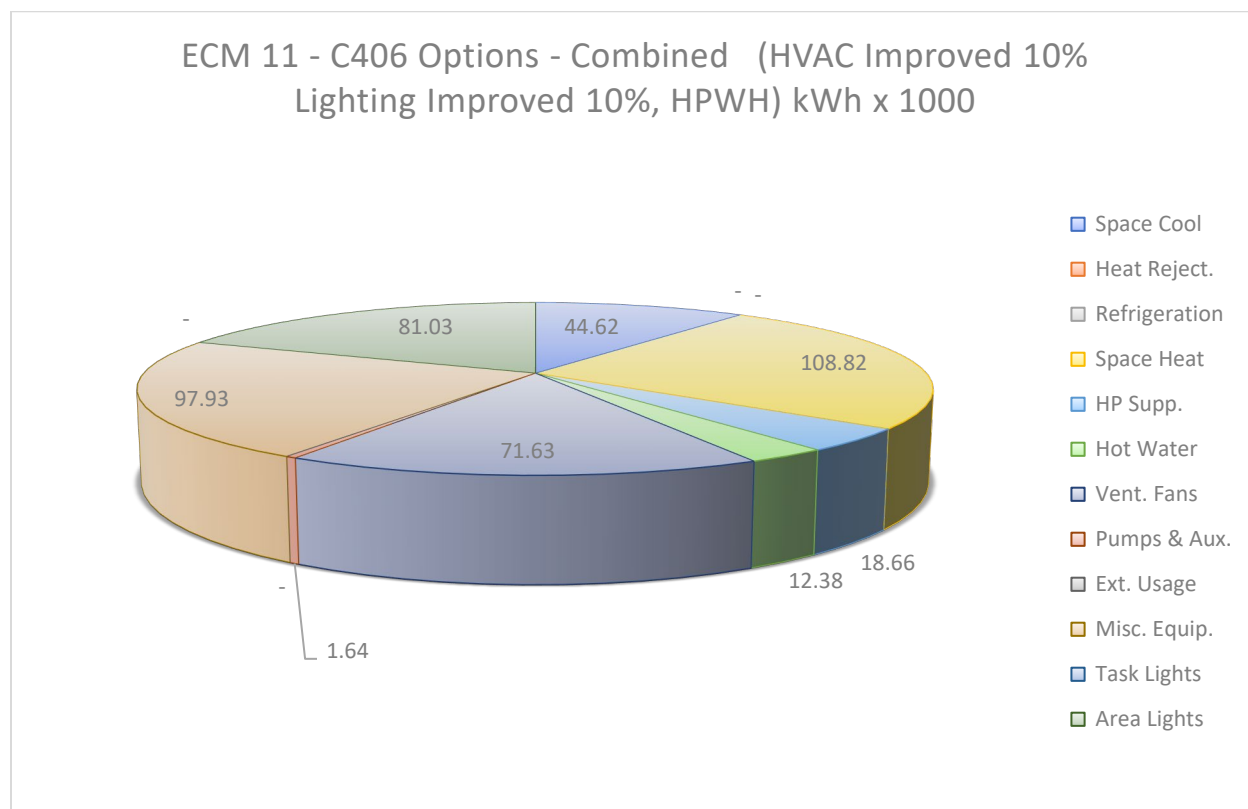


Figure 11: C406 Options kWh End Use Consumption

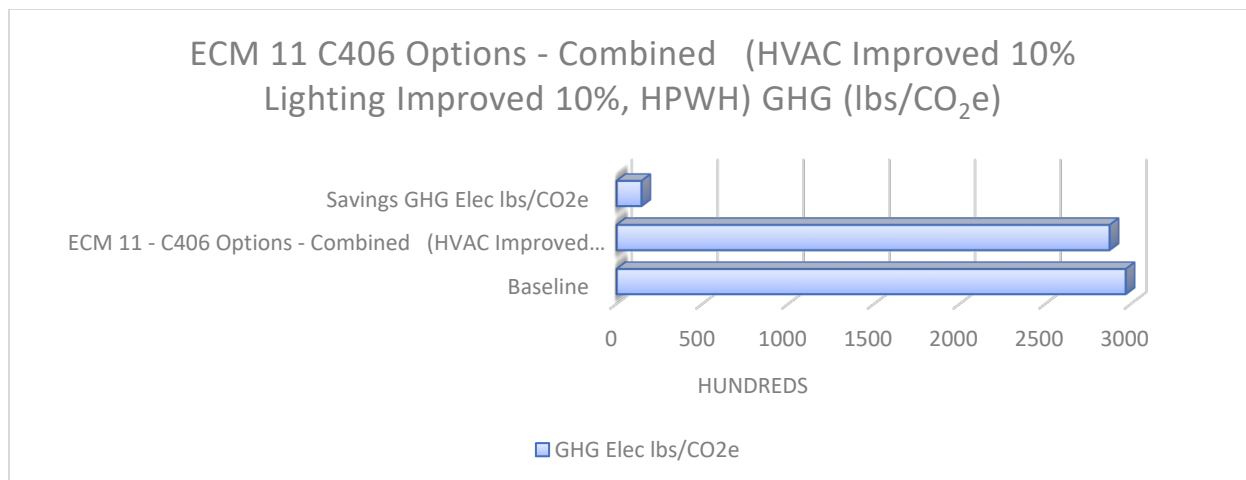


Figure 12: GHG lbs/ CO₂e emissions and savings from ECM 11

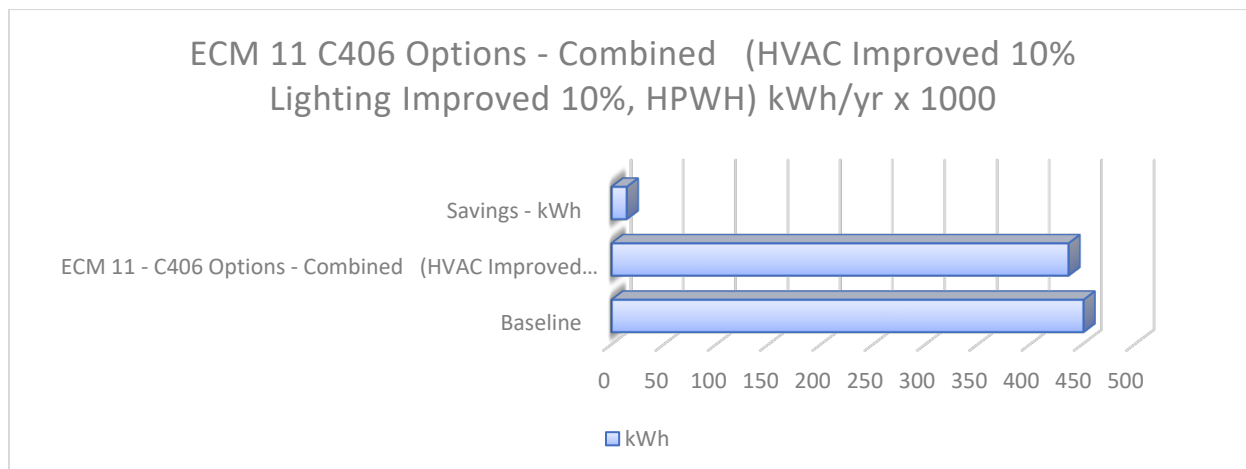


Figure 13: EMC 11 electric consumption, savings, and baseline kWh x 1000

Baseline Condition

The baseline condition is the expanded terminal with packaged single zone air cooled and electrically heated systems assigned to building zones. The standard efficiency system for the air-cooled system meets the ASHRAE 90.1-2016 Table 6.8.1-1 requirements for EER for cooling efficiency. The heating system efficiencies for the system are derived from the ASHRAE 90.1-2016 as well. The baseline system does not have any heat or energy recovery. The lighting conditions are also mapped to the ASHRAE 90.1-2016 LPD space-by-space requirements used in the baseline model. No changes were made to be baseline model for the comparison.

Calculation Methodology

The savings associated with this ECM are determined by comparing the baseline unadjusted with the combined ECM inputs from improved lighting by 10% LPDs, adjusted EIR inputs for the HVAC heating to 0.30011 and cooling to 0.32158.

The EIRs were derived from:

$$\text{Cooling: } \frac{1/EER - 0.012167}{(1/3.413) + 0.012167}$$

$$\text{Heating: } \frac{1/(COP \times 3.413) - 0.012167}{(1/3.413) + 0.012167}$$

The Heat Pump Water Heater was modeled as a slightly improved COP and EF from a baseline piece of equipment reflecting the availability of equipment.

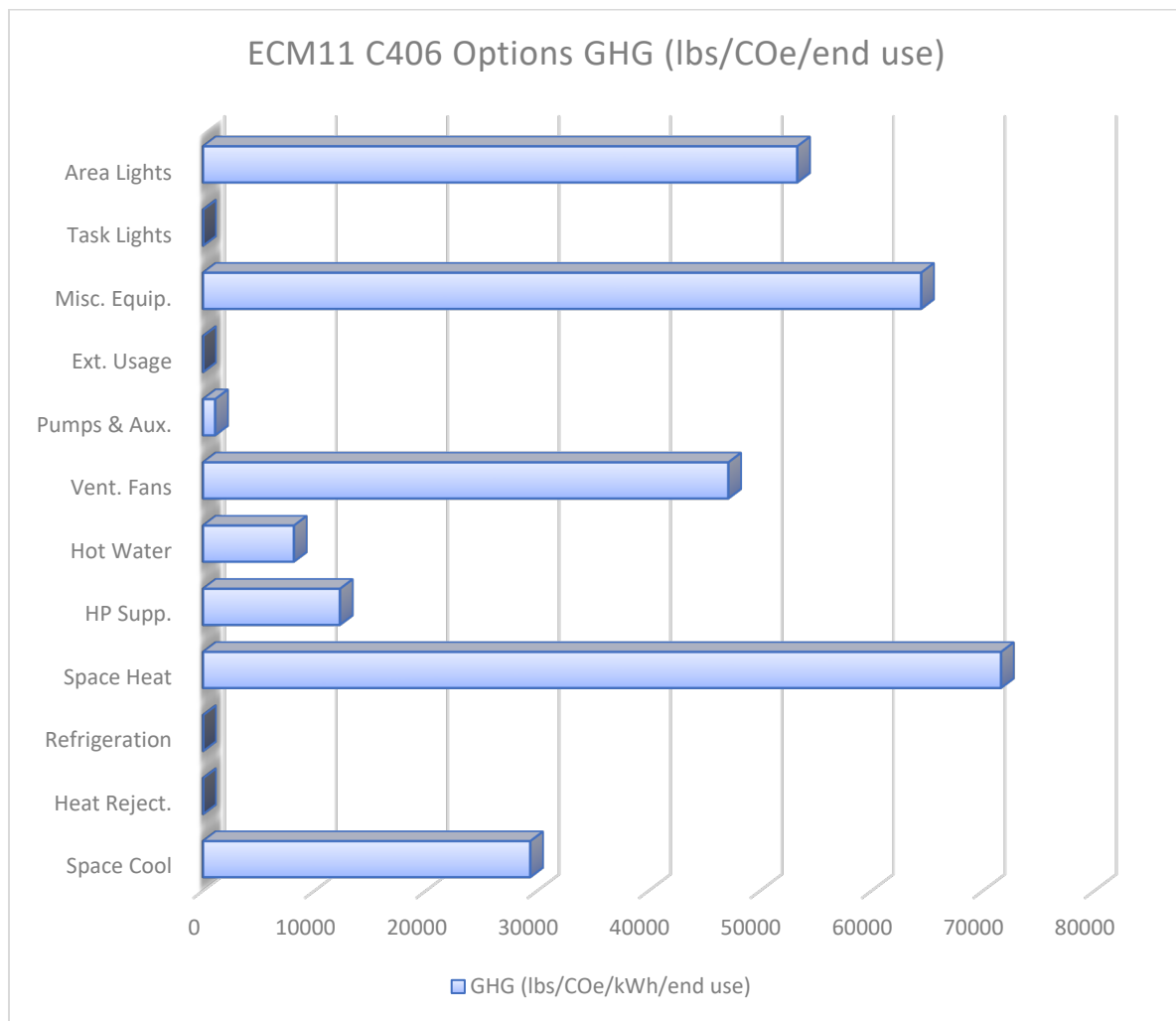
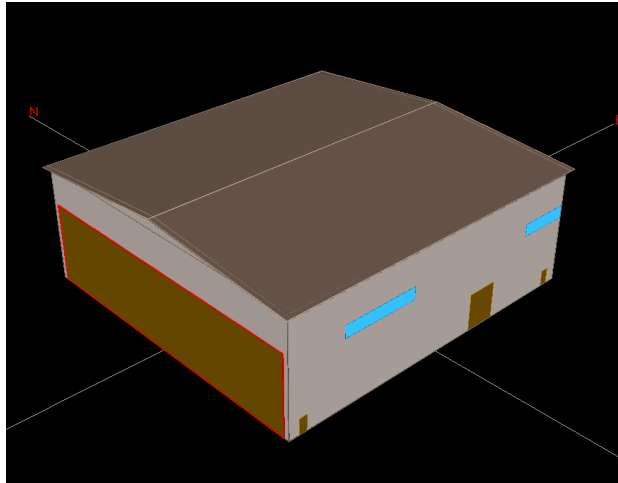


Figure 14: C406 Requirements modeled End Use GHGs

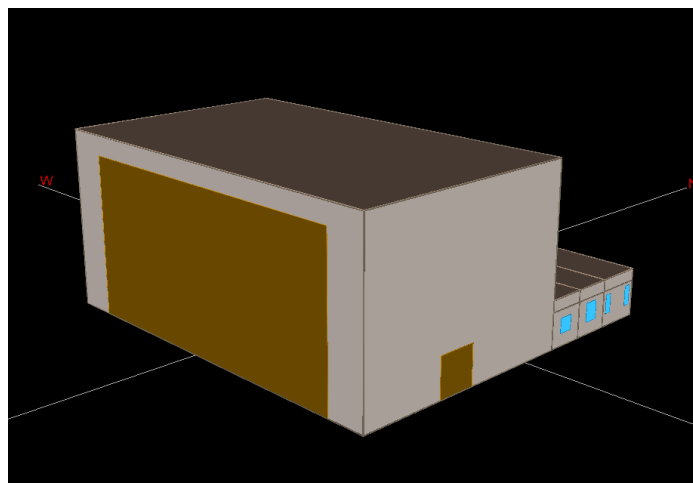
Hangars

Two new construction hangars were modeled and compared to ASHRAE 90.1 Appendix G and the prescriptive approach as inputs to the model. Hangar 2 does not have drawings at this time, so assumptions were made for the layout of the office area and window placement.



Hangar 1

Hangar 1: Hangar 1 is 15,234 sq.ft with three small utility rooms. Hangar 1 is 43.7 feet tall with a pitched roof and a hangar door 30x116 feet. The building has windows at 30 feet and access doors on the side. At each entry way the building has exterior lighting and an assumed indoor lighting. Hangar 1 is considered unconditioned, the hangar does not have HVAC equipment to maintain space temperatures, nor does it have equipment to maintain ventilation requirements.



Hangar 2

Hangar 2: Hangar 2 did not have drawings, only guidelines from the design team. Hangar 2 is estimated to be 6,000 sq.ft in the hanger and 3,200 sq.ft of office behind the building. The hangar is considered unconditioned and does not have any HVAC equipment located in the building. The office area is modeled according to ASHRAE90.1 Appendix G with a baseline (System 2) heat pump. ASHRAE values were used for the building envelope and air infiltration.

Energy Conservation Measures

Hangar 1

Baseline and Lighting

Summary – Measure Description

The lighting in Hangars 1 is modeled to code W/sq.ft. At this time, there are no detailed design drawings for either Hangar 1 or 2. Hangar 1 shows outdoor lighting so savings were accounted for compared to code values/

Energy Use, Savings and GHG Impacts

	Hangar 1	EUI	kWh	GHG Elec lbs/CO ₂ e	Savings - EUI(kbtu/sf/yr)	Savings - kWh	Savings GHG Elec lbs/CO ₂ e	Savings by %
Baseline	Baseline	17.07	113790	74,873.82	0.00	0.00	0.00	0%
EEM 1	ECM1 Lighting	10.28	68540	45,099.32	6.79	45250.00	29774.50	40%

Baseline Condition

The building is modeled with a lighting power density of 0.90 W/sq.ft. (ASHRAE90.1-2016 Building Type Workshop) and exterior lighting of 4.25 kW. These are code values for storage space and exterior lighting for lights over an entrance. The exterior lighting is assumed to operate 12 hours per day and the interior lighting is on a schedule 15 hours per day during the summer and 12.5 hours per day during the winter. The winter hours were reduced to consider the off-season schedule for the island.

Calculation Methodology

The calculation method was comparing the proposed and baseline interior (W/sq.ft) and exterior lighting (kW). The baseline has a 0.90 W/sq.ft and the proposed has an estimated 0.35 W/sq.ft. The Exterior lighting compares the 4.25kW baseline and the 2.8 kW proposed. These values are multiplied by the hours of operation to determine the kWh for each measure.

Hangar 2

Baseline, Lighting Upgrades and VRF Upgrades

Summary – Measure Description

The lighting in Hangar 2 was modeled to code W/sq.ft. At this time, there no detailed design drawings for Hangar 2. Hangar 1 shows outdoor lighting so hangar 2 is assumed to have a similar design.

The office space is conditioned with both HVAC and ventilation. A Variable refrigerant flow (VRF) system will be responsible for heating and cooling the office area of Hangar 2. The VRF system is assumed to be a Daikin system for the performance purposes of eQuest modeling. The performance curves associated with the Daikin systems were used in the model and compared to code efficient EIRs for a standard heat pump in the baseline condtions.

Energy Use, Savings and GHG Impacts

	Hangar 2	EUI	kWh	GHG Elec lbs/CO ₂ e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO ₂ e	Savings by %
Baseline	Baseline	10.28	68520	45,086.16	0.00	0.00	0.00	0%
EEM 1	ECM1 Lighting	8.35	55680	36,637.44	1.93	12840.00	8448.72	19%
EEM 2	ECM2 VRF	7.99	53230	35,025.34	2.29	15290.00	10060.82	22%

Baseline Condition

The building is considered an active warehouse in ASHRAE90.1 Appendix G with a lighting power density of 0.9 W/sqft. The office section of the hangar as an office building with the a LPD of 1.1 W/sq.ft. The outdoor lighting for the hanger is modeled as 20 W/linearfoot of entry way. The total exterior lighting is 3.48kW for Hangar 2.

Calculation Methodology

Without detailed drawings, assumptions were made for the proposed case. The proposed Hangar lighting power density is 0.35 W/sq.ft for the hangar and 0.7 W/sq.ft for the office space. The exterior lighting savings are calculated at 2.5kW for Hangar 2. The office space was modeled as a VRF system with Daikin provided performance curves. The fan power density, EIRs, and capacities were modeled in accordance with Daikin guidelines. However, the floor layouts and capacities were not yet designed so assumptions were made on the capacities and design requirements of the system.

Appendix A:

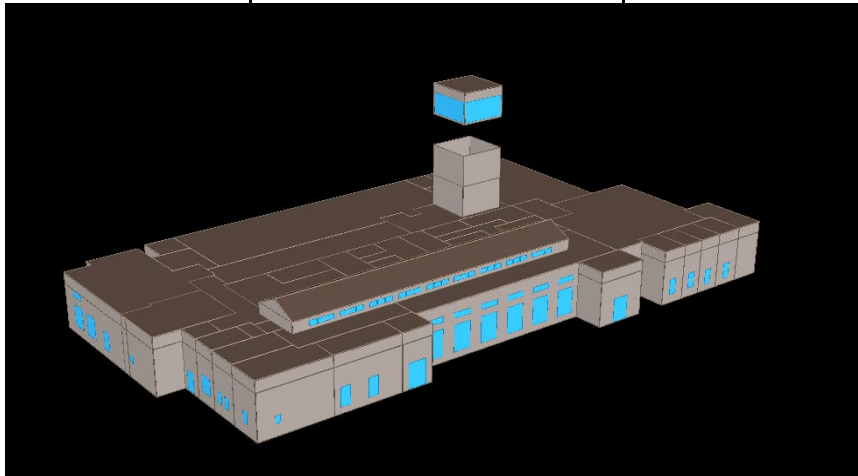
	Terminal	EUI	kWh	GHG Elec lbs/CO2e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/Coe	Savings by %
Baseline	Baseline	70.52	470030	350,902.78	0	0	0	
EEM 1	ECM1 Heat Pump	67.92	452660	337,935.13	2.61	17370.00	12967.64	4%
EEM 2a	ECM2a VRF	65.73	438090	327,057.84	4.79	31940.00	23844.93	7%
EEM 2b	ECM2b VRF w/ERV	63.84	425500	317,658.73	6.68	44530.00	33244.05	9%
EEM 2c	ECM2c VRF(CEE) w/ERV	63.84	425490	317,651.26	6.68	44540.00	33251.52	9%
EEM 3	ECM3 ERV w/heat pump	68.17	454380	339,219.21	2.35	15650.00	11683.57	3%
EEM 4	ECM4 Lighting	67.51	449940	335,904.51	3.01	20090.00	14998.27	4%
EEM 5	ECM5 Lighting Controls Daylighting	66.56	443600	331,171.35	3.97	26430.00	19731.42	6%
EEM 6a	ECM6a Curtainwall Glazing Improvement	68.39	455830	340,301.71	2.13	14200.00	10601.07	3%
EEM 6b	ECM6b Curtainwall Glazing Improvement V2	67.99	453160	338,308.41	2.53	16870.00	12594.37	4%
EEM 7a	ECM7a Curtainwall Reduced	68.84	458800	342,518.98	1.68	11230.00	8383.80	2%
EEM 7b	ECM7b Curtainwall Reduced + Improved Glazing	67.74	451480	337,054.20	2.78	18550.00	13848.58	4%
EEM 8	ECM8 Improved Building Envelope 1	69.95	466200	348,043.47	0.57	3830.00	2859.30	1%
EEM 9	ECM9 Improved Envelope 2 (Walls, Roof and Curtain Wall)	67.87	452330	337,688.77	2.66	17700.00	13214.01	4%
EEM 10	ECM10 - Combined Proposed (Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Daylighting)	59.22	394670	294,642.47	11.31	75360.00	56260.31	16%
	Hangar 1							
Baseline	Baseline	41.68	277820	207,407.63	0.00	0.00	0.00	0%
EEM 1	ECM1 Heat Pump	34.62	230730	172,252.40	7.07	47090.00	35155.23	17%
EEM 2	ECM2 Lighting	28.47	189750	141,658.62	13.21	88070.00	65749.01	32%
EEM 3	ECM 3 Passive House	14.79	98570	73,587.83	26.89	179250.00	133819.80	65%
	Hangar 2							
Baseline	Baseline	18.82	125420	93,632.80	0.00	0.00	0.00	0%
EEM 1	ECM1 Heat Pump	12.94	86230	64,375.35	5.88	39190.00	29257.45	31%
EEM 2	ECM2 Lighting	11.63	77510	57,865.40	7.19	47910.00	35767.40	38%
EEM 3	ECM 3 VRF	11.32	75460	56,334.96	7.50	49960.00	37297.84	40%
EEM 4	ECM 4 Heat Pump 2	10.66	71030	53,027.73	8.16	54390.00	40605.07	43%
	Combined	EUI	kWh	GHG Elec lbs/CO2e	Savings - EUI(kbtu/sf/yr	Savings - kWh	Savings GHG Elec lbs/CO2e	Savings by %
Baseline	Combined Baselines (Terminal, Hangar 1 and Hangar 2)	131.02	873270.00	651943.21	0.00	0.00	0.00	0%
EEM1HP	Combined Improved Heat Pump (Terminal, Hangar 1 and Hangar 2)	115.47	769620.00	574562.89	15.55	103650.00	77380.32	

EEM2LT	Combined Improved Lighting (Terminal, Hangar 1 and Hangar 2)	107.61	717200.00	535428.53	23.42	156070.00	116514.68	
EEM P	Combined Proposed (Terminal - Walls, Roof, Curtain Wall, VRF w/ERV, Lighting, Daylighting, Hangar 1- Lighting, Hangar 2 - VRF)	99.01	659880.00	492636.05	32.02	213390.00	159307.16	

Appendix B:

Martha's Vineyard Airport Expansion

created 10.01.2020

	Item	Descriptions	Data Source
Program			
	Vintage	Existing building with expansion	
	Location (Representing 8 Climate Zones)	Martha's Vineyard / Nantucket	Base on service territory MA_Marthas_Vineyard.bin
	Available fuel types	gas, electricity	
	Building Type (Principal Building Function)	Airport - Other	
Form			
	Total Floor Area (sq feet)	22,472 excluding monitor area	Reference: Drawings:
	Building shape		
	Number of Floors	1+	Drawings
	Window Locations	See pictures	
	Shading Geometry	none	
	Azimuth	non-directional	

	Thermal Zoning	by space	
	Floor to floor height (ft)	Various	
	Floor to ceiling height (ft)	Various (Some drop-in ceiling plenum is modeled)	
	Glazing sill height (ft)	Varied	

Architecture			
	Exterior walls		
	Construction	Steel-Frame Walls (2X6 16IN OC) Wood/Plywood Med adb, 3/4 in fiber board sheathing, R-19 batt and R-19 w/o exterior insulation in locations	Reference: ASHRAE 90.1- 2013/16
	U-factor (Btu / h * ft² * °F) and/or R-value (h * ft² * °F / Btu)	Walls Above Grade: U - 0.055 / R-19+R-8.5ci Insulation or R-13+R-10ci	ASHRAE 90.1- 2016
	Dimensions	based on floor area and aspect ratio	
	Tilts and orientations	vertical	
	Roof		
	Construction	Existing building is shingle roofing New Appears to be Shingle as well Built-up Roof: Roof membrane + Roof insulation Entirely Above Deck + metal decking	Reference: ASHRAE 90.1- 2016
	U-factor (Btu / h * ft² * °F)	Existing Construction U-0.041 New Construction Roofs (Above deck):U-0.032	Reference: ASHRAE 90.1- 2016
	Dimensions	based on floor area and aspect ratio	
	Tilts and orientations	horizontal	
	Window		
	Dimensions	WWR = 20%	
	Glass-Type and frame	Hypothetical window with the exact U-factor and SHGC shown above	
	U-factor (Btu / h * ft² * °F)	0.46 (metal frame operable) 0.38 (metal frame operable)	ASHRAE 90.1- 2016
	SHGC (all)	SHGC = 0.40 / 0.38	
	Visible transmittance	Hypothetical window with the exact U-factor and SHGC shown above	
	Foundation		
	Foundation Type	Slab-on-grade floors (unheated)	
	Construction	8" concrete slab with basement in segment and insulated	
	Slab on grade floor insulation Level (F-factor)	Heated F=0.55 Unheated F = 0.52 - 2016	ASHRAE 90.1- 2016
	Dimensions	based on floor area and aspect ratio	
	Interior Partitions		
	Construction	2 x 4 uninsulated stud wall	
	Dimensions	based on floor plan and floor-to-floor height	
	Ceilings	Drywall finish, no insulation	
	Internal Mass	8 lbs/ft² of floor area	Reference: Building America

		Research Benchmark
Air Barrier System		
Infiltration (ACH)	0.4 cfm/ft² of gross exterior wall area at all times (at 10 mph wind speed), refer to infiltration tab for more info.	Reference:

HVAC			
	System Type		
	Heating type	<u>Baselines :</u> Default: PSZ with Gas Furnace or PSZ with HP	ASHRAE 90.1-2016
	Cooling type		
	Distribution and terminal units	Constant volume	
HVAC Sizing			
	Air Conditioning	115% autosized to design day / some zones may be different to correct unmet load hours	
	Heating	125% autosized to design day / some zones may be different to correct unmet load hours	
HVAC Efficiency			
	Air Conditioning	Cooling 10.4 EER Heating - 3.2 COP @ 47F 2.05 COP @17F	ASHRAE 90.1-2016
	Heating		
HVAC Control			
	Thermostat Setpoint	75°F Cooling/70°F Heating	ASHRAE 90.1-2016
	Thermostat Setback	None Required, but thermostat must have a 5/2 programmability Optional:(2°F setback for apartments)	
	Supply air temperature	Maximum 110°F, Minimum 55°F	
	Economizers	Not required for under 54,000 Bth/h Cap up to first 240,000 Btu/h of buidling (Changeover at 70F), Max OA during economizing is 70%). Economizers assumed in baseline systems on systems greater than 54 Btu/h and any non-cooled mechanically cooled spaces	
	Ventilation	International Mechanical Code 2018 Chapter 4 as per the IECC 2018 code requirements for residential spaces See under Outdoor Air (See additionally Ventilation Tab)	ASHRAE 90.1-2013 / ASHRAE 90.1-2016

Demand Control Ventilation	Demand control ventilation (DCV) shall be provided for spaces larger than 500 square feet (50 m2) and with an occupant load greater than or equal to 25 people per 1000 square feet (93 m2) of floor area (as established in Table 403.3.1.1 of the International Mechanical Code) and served by systems with one or more of the following: 1. An air-side economizer. 2. Automatic modulating control of the outdoor air damper. 3. A design outdoor airflow greater than 3,000 cfm (1416 L/s).		
Energy Recovery	Required in baseline		ASHRAE 90.1-2016
Supply Fan			
Fan schedules	See under Schedules		
Supply Fan Total Efficiency (%)	Depending on the fan motor size		
Supply Fan Pressure Drop	Depending on the fan supply air cfm		
Chiller	none		
type			
efficiency			
Boiler	none		
minimum efficiency	80% combust efficiency, boiler > 300 MBH to 2,500 MBH Not used		
Service Water Heating			
SWH type	Default: Noncondensing 80.00% Capacity not listed in parameters of root file... only listed in dhw.imf Individual Residential Water Heater with Storage Tank 50 gallon Elec. Resistance - 90.4% EFF / 98% Gas - 57.5% EFF		ASHRAE 90.1-2016
Fuel type	Electricity or Gas (depends on system baseline)		
Thermal efficiency (%)	ASHRAE 90.1 Requirements / Federal Standards		ASHRAE 90.1-2016
Tank Volume (gal)	50		
Water temperature setpoint	120 F		
Water consumption			

Internal Loads & Schedules			
	Lighting		
	Average power density (W/ft²)		
	Schedule	See under Schedules	Reference: 24/7
	Daylighting Controls	Used only in EEM Lighting Controls	ASHRAE 90.1-2016
	Occupancy Sensors	Load reduction credit not take for this in the baseline or EEMS	ASHRAE 90.1-2016
	Plug load		
	Average power density (W/ft²)	See Plug Load for the detailed calculations	Reference: ASHRAE 90.1-2016
	Schedule	See under Schedules	
	Appliances See Plug Load Tab		
	Occupancy		
	Average people		Reference: ASHRAE 90.1-2016
	Schedule		

Modeling Inputs for Baseline Terminal Expansion and Existing

The baseline model inputs were derived from ASHRAE 90.1-2016 Appendix G. Inputs were modified from the original ASHRAE 90.1 defined values in some instances to be the required inputs that are used in eQuest.

Item	Baseline- Existing Building	Baseline- Expansion
Location – Weather File	Martha’s Vineyard – Nantucket or MA_Marthas_Vineyard.bin	Martha’s Vineyard – Nantucket or MA_Marthas_Vineyard.bin
Number of Floors	1	1
Window Locations	Custom	Custom
Thermal Zoning	Custom	Custom
Floor to Ceiling Height	Varies by zones Original Building -	Varies by zones
Building Envelope Construction		
Walls		
Walls – Construction	Steel frame with R-19- assembly	Steel frame with R-19+ 10 equivalents
Walls – U-Factor	U-0.08	0.055
Windows		
Windows – U-factor	U-0.42	U-0.42
Windows – SHGC	0.40	0.40
WWR	See appendix D	See appendix D
Roof		
Roof – Construction	shingle and insulation on exterior	Insulation above deck
Roof – U-Factor	U-0.041	U-0.032
Foundation		

Foundation Type	Slab on grade	Slab on grade
U-Factor	U-0.567	U-0.567
Doors		
Infiltration		
ACH	0.5	0.08 (Passive House requirement)
Heating		
System Type / Eff	Heat pump system 2 / EIR 0.33587	Heat pump system 2 / EIR 0.33587
Cooling		
System Type / Eff	PSZ Air Cooled EER – 9.3 EIR – 0.35387	PSZ Air Cooled EER – 9.3 EIR – 0.35387
DHW		
Fuel / Eff	Electric 98%	Electric Heat Pump
Ventilation		
Thermostat Control		
Heating Setpoint	64F – 72F	64F – 72F
Cooling Setpoint	72-80F (When Applicable)	72-80F (When Applicable)
Lighting		
LPD Space Types	Varied by space type	Varied by space type
Appliances / Plug Loads / MELs		
See Appendix C		

Hanger 2: Hanger 2 is 9,200 sq.ft with a 6,000 sq.ft. hanger and a 3,200 sq.ft office area at the back end. The hanger has a 40x80 foot hanger door with access doors on the side. The office spaces consist of corner offices, open offices, a vestibule entry and a corridor with access to the hanger.

Item	Baseline- ASHRAE90.1	Proposed
Location – Weather File	Martha’s Vineyard – Nantucket or MA_Marthas_Vineyard.bin	Martha’s Vineyard – Nantucket or MA_Marthas_Vineyard.bin
Number of Floors	1	1
Window Locations	Custom	Custom
Thermal Zoning	Custom	Custom
Floor to Ceiling Height	Varies by zones Original Building -	Varies by zones
Building Envelope Construction		
Walls		
Walls – U-Factor	0.055	0.03
Windows		
Windows – U-factor	U-0.42	U-0.3
Windows – SHGC	0.40	0.24
Roof		
Roof – U-Factor	U-0.043	U-0.02
Foundation		

Foundation Type	Slab on grade	Slab on grade
Roof – U-Factor	U-0.567	U-0.567
Doors		
Hanger Doors U-Value	0.37	0.15
Infiltration		
ACH	0.5	0.08 (Passive House requirement)
Heating		
System in Hanger	Electric Resistant Heating	Heat Pump
System in Office	Heat Pump (System 2)	VRF System
Cooling		
System in Hanger	None	None
System in Office	Heat Pump (System 2)	VRF System
DHW		
System	Electric	Electric Heat Pump
Ventilation		
Hanger	No Ventilation	No Ventilation
Thermostat Control		
Heating Setpoint	64F – 72F	64F – 72F
Cooling Setpoint	72-80F (When Applicable)	72-80F (When Applicable)
Lighting		
Hanger	0.9 W / sq.ft	0.55 W / sq.ft
Office Area	1.1 W/sq.ft	0.7 W/ sq.ft
Appliances / Plug Load		
Plug loads Hanger	0.25 W/sq.ft	0.25 W / sq.ft
Plug Load Offices	0.75 W/ sq.ft	0.75 W/ sq.ft
Plug Load Corridor	0.10 W/sq.ft	0.10 W/sq.ft

Appendix C:
Equipment Load Inputs

terminal_id	climate	hub	terminal_id	concession_food	concession_retail	office	transient_space	ticketing	departures	claim_baggage	handle_baggage	service_area	total	border	Totals
37	w	N	37	534	0	3780	17565	1817	2701	337	3374	1687	32187	392	

terminal_id	climate	hub	concession_food	office	transient	ticketing	departures	border	baggage_handling	baggage_claim	service	baggage	elevator	ground_equipment	alernative_systems	parking	measured_electric	mesured_gas	
37	w	N	137932200	351162000	1649353500	170616300	253623900	45393600	316818600	31644300	277342800	2416037.2	33017514.56	60109204	462481327.9	502673680.9	3637346768	1189300000	
		w/sf/yr	4285.338801	10910.0569	51242.84649	5300.782925	7879.699879	1410.30851	9843.060863	983.1391556	8616.60919	75.06251592	1025.802795	1867.499425	14368.57514	15617.28899	113006.7036	36949.70019	Total EUI
		kWh/sf/yr	4.285338801	10.9100569	51.24284649	5.300782925	7.879699879	1.41030851	9.843060863	0.983139156	8.61660919	0.075062516	1.025802795	1.867499425	14.36857514	15.61728899	113.0067036	36.94970019	133.4260715
		w/sf/hr	0.489193927	1.24544028	5.84964001	0.605112206	0.899509119	0.160994122	1.123637085	0.112230497	0.983631186	0.00856878	0.117100776	0.213184866	1.640248303	1.782795547	12.90030863	4.218002305	

Appendix D:

Terminal Window Wall Ratios

BASELINE				
	Average U Value	Average U Value	Average U-Value	WWR
	Windows	Walls	Windows+Walls	
NORTH-EAST	0.467	0.075	0.124	0.126011
SOUTH-EAST	0.51	0.078	0.163	0.196925
SOUTH-WEST	0.488	0.077	0.116	0.095889
NORTH-WEST	0.418	0.076	0.191	0.335802
FLOOR	0	0.094	0.094	0
ROOF	0	0.038	0.038	0
ALL WALLS	0.452	0.077	0.157	0.213479
WALLS+ROOFS	0.452	0.054	0.094	0.099784
BUILDING	0.452	7%	0.094	0.067607

PROPOSED				
	Average U Value	Average U Value	Average U-Value	WWR
	Windows	Walls	Windows+Walls	
NORTH-EAST	0.467	0.075	0.124	0.126011
SOUTH-EAST	0.51	0.078	0.163	0.196925
SOUTH-WEST	0.488	0.077	0.116	0.095889
NORTH-WEST	0.418	0.076	0.191	0.335802
FLOOR	0	0.094	0.094	0
ROOF	0	0.038	0.038	0
ALL WALLS	0.452	0.077	0.157	0.213479
WALLS+ROOFS	0.452	0.054	0.094	0.099784
BUILDING	0.452	0.068	0.094	0.067607

Appendix E:

Terminal Lighting LPD Inputs

Space Name	Base ASHRAE 90.1- 2016 Lighting LPD	20% Reduction LPD
106 Electrical Room	0.43	0.344
129 Electrical Room	0.43	0.344
Airline and TSA Offices	0.93	0.744
Airline Office N	0.93	0.744
Airline Office S	0.93	0.744
ATC Base	0.66	0.528
Bag Screening	0.45	0.36
Baggage Claim - Arrival Lobby	0.45	0.36
Corridor Behind Ticketing	0.66	0.528
Corridor East	0.66	0.528
Departures Lobby	0.31	0.248
Doorway South Area	0.66	0.528
Hold Room	0.31	0.248
Janitors Closet	0.97	0.776
Kitchen West Side	1.06	0.848
Mens Restroom 123	0.85	0.68
Men's Room West Corner 109	0.85	0.68
Non-Secure Waiting	1	0.8
Office 118	0.93	0.744
Office 119	0.93	0.744
Office 120	0.93	0.744
Office 121	0.93	0.744
Office Center N	0.93	0.744
Office Center S	0.93	0.744
Office Enclosed - 128	0.93	0.744
Office TSA -2	0.81	0.648
Open Office	0.81	0.648
Rest Rooms Hold Area	0.85	0.68
Restauant N/W	0.71	0.568
Security Queue Area	1	0.8
Security Queue Area TSA Agents	1	0.8
Storage	0.97	0.776
Ticketing	0.62	0.496
Ticketing Baggage Loading	0.62	0.496
Tower Ground	0.58	0.464
Tower Middle Floor	0.58	0.464
Tower Top Floor	0.58	0.464
TSA Baggage Screening Area	0.61	0.488
TSA Office Ext. South	0.93	0.744
TSA Security N	1	0.8
Vestibule - South East Front	0.66	0.528

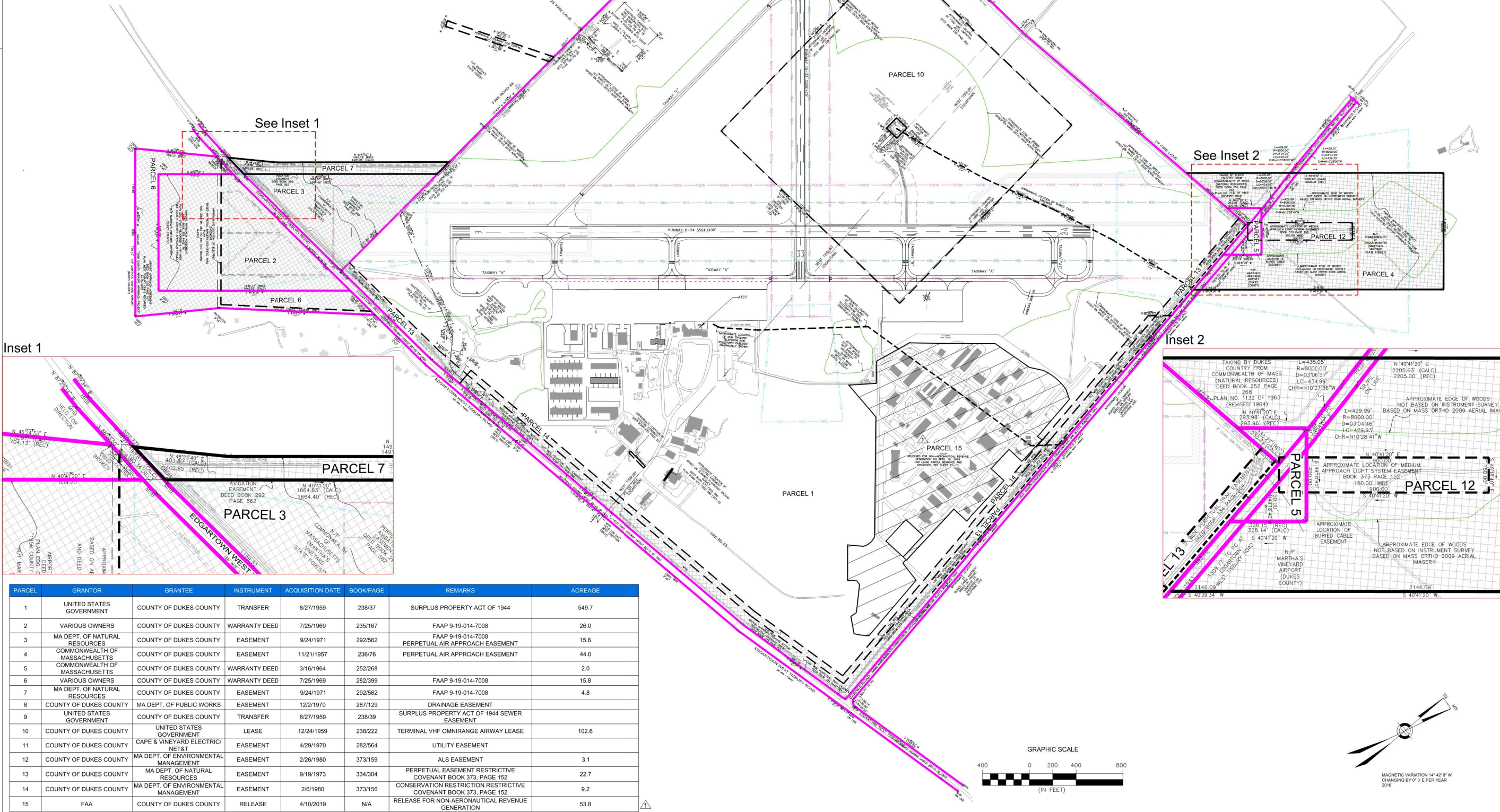
Vestibule N/E	0.66	0.528
Vestibule N/W	1	0.8
West Corridor	0.66	0.528
West Exit Corridor/Vestib - 110	0.66	0.528
West Office - 105	0.93	0.744
Womens Restroom 124	0.85	0.68
Womens Room West Corner	0.85	0.68

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX E

Exhibit A – Airport Property Map

LEGEND	
	AIRPORT PROPERTY LINE
	ROADS AND INTERSTATES
	BUILDINGS
	RUNWAY PROTECTION ZONES
	CITY AND TOWN BOUNDARY
	RUNWAY OBJECT FREE AREA
	RUNWAY SAFETY AREA
	EDGE OF PAVEMENT
	GLIDE SLOPE CRITICAL AREA
	LOCALIZER CRITICAL AREA
	EASEMENT LINE
	EASEMENT PARCEL
	LAND RELEASE AREA



PARCEL	GRANTOR	GRANTEE	INSTRUMENT	ACQUISITION DATE	BOOK/PAGE	REMARKS	ACREAGE
1	UNITED STATES GOVERNMENT	COUNTY OF DUKES COUNTY	TRANSFER	8/27/1959	238/37	SURPLUS PROPERTY ACT OF 1944	549.7
2	VARIOUS OWNERS	COUNTY OF DUKES COUNTY	WARRANTY DEED	7/25/1969	235/167	FAAP 9-19-014-7008	26.0
3	MA DEPT. OF NATURAL RESOURCES	COUNTY OF DUKES COUNTY	EASEMENT	9/24/1971	292/562	FAAP 9-19-014-7008	15.6
4	COMMONWEALTH OF MASSACHUSETTS	COUNTY OF DUKES COUNTY	EASEMENT	11/21/1957	236/76	PERPETUAL AIR APPROACH EASEMENT	44.0
5	COMMONWEALTH OF MASSACHUSETTS	COUNTY OF DUKES COUNTY	WARRANTY DEED	3/16/1964	252/268	PERPETUAL AIR APPROACH EASEMENT	2.0
6	VARIOUS OWNERS	COUNTY OF DUKES COUNTY	WARRANTY DEED	7/25/1969	282/399	FAAP 9-19-014-7008	15.8
7	MA DEPT. OF NATURAL RESOURCES	COUNTY OF DUKES COUNTY	EASEMENT	9/24/1971	292/562	FAAP 9-19-014-7008	4.8
8	COUNTY OF DUKES COUNTY	MA DEPT. OF PUBLIC WORKS	EASEMENT	12/2/1970	287/129	DRAINAGE EASEMENT	
9	UNITED STATES GOVERNMENT	COUNTY OF DUKES COUNTY	TRANSFER	8/27/1959	238/39	SURPLUS PROPERTY ACT OF 1944 SEWER EASEMENT	
10	COUNTY OF DUKES COUNTY	UNITED STATES GOVERNMENT	LEASE	12/24/1959	238/222	TERMINAL VHF OMNIRANGE AIRWAY LEASE	102.6
11	COUNTY OF DUKES COUNTY	CAPE & VINEYARD ELECTRIC/NET&T	EASEMENT	4/29/1970	282/564	UTILITY EASEMENT	
12	COUNTY OF DUKES COUNTY	MA DEPT. OF ENVIRONMENTAL MANAGEMENT	EASEMENT	2/26/1980	373/159	ALS EASEMENT	3.1
13	COUNTY OF DUKES COUNTY	MA DEPT. OF NATURAL RESOURCES	EASEMENT	9/19/1973	334/304	PERPETUAL EASEMENT RESTRICTIVE COVENANT BOOK 373, PAGE 152	22.7
14	COUNTY OF DUKES COUNTY	MA DEPT. OF ENVIRONMENTAL MANAGEMENT	EASEMENT	2/6/1980	373/156	CONSERVATION RESTRICTION RESTRICTIVE COVENANT BOOK 373, PAGE 152	9.2
15	FAA	COUNTY OF DUKES COUNTY	RELEASE	4/10/2019	N/A	RELEASE FOR NON-AERONAUTICAL REVENUE GENERATION	53.8

EXHIBIT A
AIRPORT PROPERTIES
MAP

Mark	Description	Date	MTD
	REVISION 1 - LAND RELEASE	4-10-2019	

Designed by: HMM	Date: 11-22-2016	Rev.
Dwn by: MED	Design file no.	
Reviewed by: HMM	Drawing code:	
Submitted by:	File name:	
	Plot date: November 2016	
	Plot scale: 1"=100'	

MARTHA'S VINEYARD AIRPORT
VINEYARD HAVEN
MASSACHUSETTS
UNIVERSITY OF MASSACHUSETTS
TWO EXECUTIVE PARK DRIVE
SUITE 205
BEDFORD, MA 01810



Sheet
reference
number:
07
07 OF 11

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX F

Agency Correspondence



RARE SPECIES MEETING MINUTES

DATE: June 13, 2017, 10:00AM **MJ Project No.:** 18226.04 and 18226.07

LOCATION: MA Natural Heritage and Endangered Species Program, Westborough, MA

PROJECT: Martha's Vineyard Airport Land Development Planning and 5-year CIP EA/EIR

ATTENDEES:

Eve Schluter, MA Natural Heritage and Endangered Species Program
Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ)
Matthew O'Brien, Project Engineer, MJ
Ann Crook, Airport Manager, Martha's Vineyard Airport (telephone)
Geoff Freeman, Assistant Airport Manager (telephone)
Erin Haugh, Biologist, GZA (telephone)

The meeting was held to discuss rare species issues associated with an ongoing land development study at Martha's Vineyard Airport and to introduce the upcoming Capital Improvement Plan (CIP) project environmental process.

Overall Approach to Permitting

The original 2005 Conservation and Management Permit and 2009, 2014, and 2017 amendments were reviewed. MJ prepared the attached a summary of permitted projects and mitigation. Not all of the projects with impacts were constructed, but all of the mitigation projects were constructed. Overall, 21.8 acres of rare species habitat impacts were permitted, 11.8 acres of impacts were incurred, and 46.5 acres of mitigation were constructed.

Eve noted that the past impact and mitigation accounting was useful and some of the mitigation could potentially be considered in future permitting, but regulations and protected species have changed, and she would like to avoid additional amendments and would like to commence a new permit process. The permit process would unfold simultaneous with the EA/EIR process, with impacts, avoidance, minimization, mitigation, and construction measures determined during that process. The permit application could be submitted around the time the EA/EIR is finalized. The rare species analysis would take a holistic approach, considering the current regulations, updated species listings, kinds and quality of habitats impacted, acreage affected, current mitigation ratios, species takings, animal vs. plant impacts, schedule of construction, and other factors.

Permitting Land Development Projects

The land development projects are not on the CIP and are locally rather than federally funded. They include a variety of possible projects that have not yet been fully defined but may need to be advanced sooner than the CIP project approval process. Possibilities range from commercial structures on two-acre parcels within the existing business park to a possible large solar farm. Areas that might be appropriate for development (based on many considerations) have been identified, but site-specific projects and impacts have not yet been defined.

Since there are anti-segmentation requirements for both the Massachusetts Endangered Species Act (MESA) and the Massachusetts Environmental Policy Act (MEPA) processes, the MESA permit and the MEPA environmental document should probably address the entire range of potential projects, including land development and CIP projects. However, if land development projects need to be permitted prior to completion of the overall permit process, Natural Heritage could consider issuing an amendment to the prior permit. MEPA would need to be contacted to determine how these early projects could be progressed in the context of their permit thresholds and anti-segmentation requirements.

Westfield-Barnes Airport was mentioned as an example of this kind of holistic approach, though the species and habitat impacts were less complicated. They addressed impacts and mitigation for a broad range of project types in a single permit, although Natural Heritage issued amendments to an older permit as needed for fast-track projects until the overall permit could be issued.

Because the exact nature and locations of land development projects are not yet known, impacts and mitigation cannot be determined with certainty. There are a couple of ways this could be handled with respect to the Conservation and Management Permit. The airport could identify possible areas to develop, make assumptions about the level of impacts expected, obtain consensus on the level of mitigation required, and get those impacts and mitigation permitted. The mitigation proposal would be fine-tuned when projects are proposed for construction and impacts are better defined, and mitigation would be implemented prior to construction. Alternatively, after approximate impacts and mitigation are determined, mitigation could be implemented collectively in advance for the range of potential development projects. This could ultimately be more cost-effective. For MEPA, changes to proposed projects could perhaps be handled with Notices of Project Change.

Regarding the solar farm, Eve recommended considering placing panels on existing structures or disturbed areas rather than undisturbed habitat with rare species potential. The state Department of Energy Resources' incentives may be tied to consideration of such alternatives.

Plant Survey Areas and Protocols

The rare plant survey study area was discussed, referring to the attached color-coded map prepared by GZA. All potential impact areas could be surveyed this season, or the survey could be phased as projects are proposed for construction. The following conclusions were drawn:

- No rare species survey is needed in existing woodland or scrub-shrub areas, but these areas should be ground-truthed to confirm habitat type and condition. No survey will be required for whip-poor-wills.
- There is a specific newer rare plant location that Eve will provide to Erin to check (if it is within the survey areas).
- Green areas, and other grassland areas not previously surveyed, should be surveyed for rare plants this season.
- Yellow areas, and any other areas surveyed in recent years (2012 or sooner perhaps), do not necessarily need to be re-surveyed now. We have a general idea of what rare plants are found where in these areas, and can make conservative assumptions about impacts for the time being. Sometime prior to construction, they would need to be formally field-surveyed and mitigation would need to be fine-tuned accordingly. If construction is expected relatively soon, they should be re-surveyed soon. Most construction projects will be carried out in September, so advance notice will be necessary in order to schedule surveys during the proper seasons (for example, the September prior to construction, which would be a full year in advance).
- Orange areas, if they have not been looked at since the 2005 time frame, will need to be surveyed.
- The turf tie-down area (blue and adjacent green) will need to be looked at to see if there is suitable habitat for rare species. If so, these areas should be surveyed; if not, just document conditions.
- Land development areas will need to be looked at soon to see what kind of habitat is present. They appear to be woodland and shrub habitats. These habitats should be identified but no rare species surveys are required at this time. Rare species surveys could be required prior to construction, or sooner, depending on habitats present and species listings at the time.
- Any area proposed for construction would need a rare plant survey within one or two growing seasons prior to the start of construction.

Eve previously approved GZA's proposed plant survey protocols. She would like to receive survey data as soon as it becomes available, i.e., not just once at the end of the year. It may be useful to evaluate past mitigation areas while we are out. Eve will look over the last annual monitoring report to see what it says about habitat quality in past mitigation areas.

Mitigation

Mitigation would be determined in consideration of the entire collection of proposed airport projects and impacts. Types of mitigation would depend on types of species and habitats impacted. Eve would consult with Natural Heritage specialists to evaluate proposed options. There is flexibility in this regard, and some mitigation could conceivably be off-airport or even off-island. Some general comments on mitigation:

- Mitigation for one habitat type can require tradeoffs with other habitat impacts.
- Habitat enhancement and management measures can be a form of mitigation. Eve recommended reviewing potential mitigation areas on airport property, such as frost pockets/bottoms, that could be enhanced.

- Tree thinning can be a form of mitigation, and the amount of protected woodland surrounding the airport may provide justification for having less woodland on airport.
- Rare wildlife species permitting may have more flexibility than rare plant species, which involve direct takings of protected organisms.
- Translocation is likely to be required for plant impacts.

Project Coordination with Natural Heritage

Even recommended holding project meetings to discuss ongoing rare species issues. These could be at regular intervals or tied to project milestones, and could be by phone or in person.



MEPA MEETING MINUTES

DATE: August 7, 2017, 1:00PM **MJ Project No.:** 18226.04 and 18226.07

LOCATION: MA Executive Office of Energy and Environmental Affairs MEPA Office
100 Cambridge St. 9th Floor, MEPA Conference Room, Boston MA

PROJECT: Martha's Vineyard Airport 5-year Capital Improvement Plan and Land Development Planning

ATTENDEES:

Dierdre Buckley, Director, MEPA Office
Ann Richart, Airport Manager, Martha's Vineyard Airport
Geoff Freeman, Assistant Airport Manager (telephone)
Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ)
Matthew O'Brien, Project Engineer, MJ
Richard Doucette, Environmental Manager, FAA (telephone)
Tom Mahoney, Director of Airport Engineering, MassDOT Aeronautics Division (telephone)
Mike Garrity, Planning and Environmental Analyst, MassDOT Aeronautics (telephone)
Steve Rawding, Aviation Planner, MassDOT Aeronautics (telephone)

The meeting was held to discuss the upcoming Capital Improvement Plan (CIP) projects and other potential land development projects at Martha's Vineyard Airport, in particular regarding the Massachusetts Environmental Policy Act (MEPA) process. National Environmental Policy Act (NEPA) implications were also discussed.

Capital Improvement Plan Projects

The 12 FAA-funded CIP projects were described and their MEPA involvement discussed:

- Project 1: Remove Runway 15/33 Shoulder Pavement: This will be completed this fall, resulting in a reduction in impervious surface. This reduction would be considered in the cumulative impact analysis and offset future pavement additions.
- Project 2: Paint Apron Islands: It is uncertain whether this will simply be a painting project or may involve more substantial changes such as moving a stub taxiway. This will be included in the MEPA/NEPA analysis as alternatives are studied. If it remains a painting project it could be removed from detailed environmental study and processed as a Categorical Exclusion under NEPA.
- Project 3: Replace Firetrucks: Remove from MEPA analysis (assuming no other infrastructure is needed) and process as NEPA Categorical Exclusion.

- Projects 4 and 5 (mill and overlay both runways): The extent of grading outside existing pavement is uncertain but could be substantial. These projects will be studied in the MEPA/NEPA analysis as alternatives are developed and evaluated.
- Project 6: Concrete Pad at Fuel Farm: In addition to new impervious surface, there could be stormwater management work. This project will be included in at least the MEPA Environmental Notification Form and could probably be addressed in a separate NEPA Categorical Exclusion.
- Projects 7, 8, 10, and 12 (expand ramps and construct a taxiway): All involve substantial new impervious surface or footprints and will be included in the MEPA/NEPA study.
- Project 9 (expand terminal): There is insufficient passenger space in the existing terminal building and temporary structures such as a tent are used. The availability of FAA funding is uncertain. This project could result in a substantial building expansion and reconfiguration of roads and parking, and will be included in the MEPA/NEPA study. The airport will begin looking at terminal expansion concepts soon. MassDOT can participate in monetary support if there is FAA support.
- Project 11 (remove Taxiway E): This will involve grading within Priority Habitat areas and will be included in the MEPA/NEPA study.

Land Development Projects

The airport is zoned LI (Light Industrial), B-III (Business) and B-IV (Trades). There is little developable land left on the island, and the airport could be an appropriate place for a wide variety of commercial land uses that would benefit the public but may be less appropriate in other areas. It would also provide additional revenue for the airport. The wastewater treatment facility is sufficient for current uses and has some capacity for more inputs.

Edgartown-West Tisbury Road is a state highway. Ms. Buckley asked if there are MassDOT access issues.

The ability to proceed with individual developments in advance of the MEPA process was discussed. There are a number of considerations that determine segmentation: if there is a common development plan or a connection between developments, if project proponents are the same, the timing of the various activities, how they would be permitted by other agencies, etc. If projects are considered together, then consider them cumulatively in determining whether they meet MEPA thresholds. Consider net new impervious surface or net new land alteration (in undisturbed ground).

Overall Process

Ms. Buckley recommended reviewing the various CIP and land development projects in light of MEPA thresholds. If footprints are not known, assumptions could be made, preferably conservatively so that impacts are not underestimated and there is more flexibility later on. Projects individually impacting less than 10,000 square feet would not be looked at individually.

A Phase 1 waiver could be granted allowing some projects to move forward. Non-aviation projects could possibly be processed separately from “airside” projects. There can also be special procedures developed to allow flexibility for certain large and complex fast-track projects. If a project cannot be defined now or comes up later, a Notice of Project Change could be sought.

The appropriate NEPA document for the CIP projects is an environmental assessment, consistent with other airport CIP projects around New England.

An Environmental Notification Form will be required. It will need to include a greenhouse gas analysis. Rare species, noise, and possibly water quality (sole source aquifer) are likely to be the key issues. Mr. Merrow noted that the airport has begun coordinating with the MA Natural Heritage and Endangered Species Program and will be working closely with them throughout the process. Mr. Doucette expects many public comments pertaining to induced aviation traffic growth and noise, but noted that more pavement does not necessarily mean capacity or growth. Projects with very limited impacts should be identified in the Environmental Notification Form so they can be processed separately (perhaps with Phase 1 waivers) and move forward.

One “blended” Environmental Assessment and Environmental Impact Report document will be prepared to satisfy both NEPA and MEPA requirements. Filings and public hearings will be jointly done.

Mr. Doucette prefers land development (non-aviation) projects be processed separately under NEPA. They may need to be considered in the Environmental Assessment for cumulative impacts. The cost of studying these developments should be separate from aviation projects. Tenants are typically required to obtain their own environmental permits.

Ms. Buckley asked for information regarding MEPA thresholds and time frames for improvements. She recommended working with the Martha’s Vineyard Commission’s Joann Taylor, who has extensive MEPA experience.



MEPA MEETING MINUTES

DATE: February 9, 2018, 10:30 AM **MJ Project No.:** 18226.04/07/11

LOCATION: MA Executive Office of Energy and Environmental Affairs MEPA Office
100 Cambridge St. 9th Floor, MEPA Conference Room, Boston MA

PROJECT: Martha's Vineyard Airport Land Development Planning, Runway 6-24, and 5-year
Capital Improvement Plan

ATTENDEES:

Dierdre Buckley, Director, MEPA Office

Eve Schluter, Assistant Director, MEPA Office

Ann Richart, Airport Manager, Martha's Vineyard Airport (telephone)

Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ)

Matthew O'Brien, Project Engineer, MJ

Brian Smith, Aviation Manager, MJ

Owen Silbaugh, Aviation Engineer, MassDOT Aeronautics (telephone)

Nate Rawding, Environmental Analyst III, MassDOT Aeronautics (telephone)

Mike Garrity, Planning and Environmental Analyst, MassDOT Aeronautics (telephone)

The meeting was held to discuss permitting issues surrounding land development projects, Runway 6-24 reconstruction, and the upcoming Capital Improvement Plan (CIP) projects at Martha's Vineyard Airport, in particular regarding the Massachusetts Environmental Policy Act (MEPA) process.

Land Development Parcels

The airport has identified portions of airport property that will not be needed for aviation use and are suitable for private development. Considering environmental constraints (Priority Habitat in particular), the airport has prioritized parcels that are adjacent to existing development and outside of Priority Habitat. The focus for the near term will be on the blue and cyan areas within the heavy dashed lines on the attached figure. This will include most of the yellow well radius, once the well is decommissioned. The Natural Heritage and Endangered Species Program has stated they do not have jurisdiction over work in non-Priority Habitat areas, unless it somehow leads to future disturbance in Priority Habitat.

The airport would like to proceed with the land release and development as soon as possible. FAA needs to formally release the land from deed restrictions for aeronautical use; a

Categorical Exclusion would be needed to satisfy NEPA requirements; the land is being reviewed for possible historic or archaeological resources; and U.S. Fish and Wildlife Service is being contacted regarding rare bat species.

The size of the parcels was discussed. There are approximately 7 acres of blue/cyan land along Barnes Road and 14 acres along Airport Road. The size of individual parcels won't be determined until a Request for Proposals for specific locations is prepared. For MEPA purposes (if there is MEPA jurisdiction), the potential buildout area of at least the first phase of the development areas should be estimated. Future phases are not currently planned and the timing and nature of the developments are uncertain.

MEPA could have jurisdiction if there is state funding or the project requires a state action, such as a permit. A new access on the state highway or certain increases in vehicle trips could require state approval. The number of vehicle trips on state roads will be looked into. (MassDOT later determined that developing the 7 acres along Barnes Road would not require an indirect access permit provided the number of additional parking spaces and trips per day are below the MEPA thresholds.)

If there is a state agency action and MEPA jurisdiction for any of the first phase development, MEPA thresholds would be considered.

Segmentation was discussed. If MEPA has jurisdiction and the development is all on one site, the proponent is the same, and it is within a five-year time frame, it is likely considered one project for MEPA purposes. To move the business park development projects forward prior to the CIP ENF/EA/EIR process, one option is a Phase I waiver, which requires demonstrating hardship and other considerations. If, however, the work was already approved by MEPA as part of the larger business park, the work may proceed.

The business park was constructed around 1999-2000. In reviewing past MEPA documents, we have not been able to find explicit approval of the park, but it was present and represented on plans during the last major permit round in 2004-2005. We are assuming for the time being that undeveloped portions of the business park do not have prior MEPA approval.

Runway 6-24 Reconstruction

The plan is to start in October 2018 and finish in the spring and fall of 2019. Some grass areas would be converted to pavement, and some pavement converted to grass, with a net decrease in pavement and increase in grass of 0.2 acres. Rare plants occur along the edges of the pavement, and any moving or transplanting would be an impact and require a permit from Natural Heritage. This agency action also confers MEPA jurisdiction, though it may not meet the MEPA thresholds for ENF or EIR filings. In calculating the MEPA threshold for land alteration, consider net new alteration, and not previously altered land. If the land was altered many years ago and has become natural habitat, it may need to be included in land alteration totals.

Existing pavement does not need to be included. If there is a rare species take or the project meets the MEPA thresholds, there will be MEPA jurisdiction.

If the project stays within the existing pavement footprint, it could move forward without MEPA approvals. (Project proponents later decided to stay within existing pavement.)

Capital Improvement Plan Projects

For the CIP projects, MEPA jurisdiction would be determined once project-specific information is available.

Ms. Schluter asked about the possibility of a rare species master plan. Mr. Merrow noted that FAA may have concerns about such a plan. Regardless of nomenclature, the rare species strategy would be developed over the course of the ENF/EA/EIR process, culminating in a Conservation and Management Permit application. Ms. Schluter suggested the Westfield-Barnes rare species plan could be a useful model.



RARE SPECIES MEETING MINUTES

DATE: August 14, 2018, 1:00 PM **MJ Project No.:** 18226.07

LOCATION: MA Natural Heritage and Endangered Species Program, Westborough, MA

PROJECT: Martha's Vineyard Airport 5-year CIP EA/EIR and Business Park Lots 34 and 38

ATTENDEES:

Amy Hoenig, MA Natural Heritage and Endangered Species Program
Jed Merrow, Environmental Project Manager, McFarland Johnson (MJ)
Dave Nelson, Project Engineer, MJ
Nate Rawding, MassDOT
Matthew O'Brien, Project Engineer, MJ (telephone)
Ann Richart, Airport Manager, Martha's Vineyard Airport (telephone)
Richard Doucette, Environmental Program Manager, FAA (telephone)

The meeting was held to discuss rare species issues associated with the upcoming Capital Improvement Plan (CIP) projects and the Business Park lots 34 and 38 at Martha's Vineyard.

CIP Projects

NEPA and MEPA documents are being prepared for the CIP projects. The first step is a MEPA Environmental Notification Form, which is currently in preparation. The CIP projects were individually described as follows.

1. Runway 6/24 side safety areas and primary surface obstruction: The existing ground along the primary Runway 6/24 does not conform to FAA safety guidelines. Most of the work would be lowering the ground elevation. The proposed limits of disturbance have not yet been determined.
2. Rehabilitate Runway 15/33 and regrade side safety areas: The runway has more pavement width than needed, and extra pavement (approximately 75 feet of width for roughly 2,000 feet) will be removed. Portions of the adjacent safety areas, object free areas and primary surface obstructions will be graded to meet FAA safety guidelines.
3. Construct concrete fuel pad at existing fuel farm: The existing crushed asphalt (millings) material sticks to tires and gets onto aircraft pavement, which is a safety concern. The existing asphalt millings would be paved with no increase in footprint, except for possible minor stormwater management. The asphalt millings extend the entire width within the existing fenced fueling area.

4. Expand and renovate existing terminal building: The terminal is undersized for the demand during summer, which is their peak time of the year. The building would be expanded. The adjacent curb-side area would be relocated and reconfigured to address the vehicle congestion, and the parking area may be modified to improve traffic flow. Some turf areas will be affected, but this is outside Priority Habitat.
5. Remove Taxiway E and construct new Taxiway E: FAA prefers taxiways extend to the runway ends, so planes do not have to taxi on runways. FAA also prefers that taxiways meet runways at a perpendicular angle for better visibility in both directions. This project is within Priority Habitat and would probably result in a net increase in pavement area.
6. Pave transient turf tie down area: This is an existing turf tie-down area and a portion of it is underlain by an infiltration basin. It is currently used for aircraft parking during peak season. This project would result in additional paved surface to accommodate aircraft parking within what is now a relatively disturbed turf habitat.
7. Southeast ramp expansion: FAA requires a reconfiguration of taxiway access to the apron, which will disrupt the current layout and functionality of the facility. Future hangars (see number 10) and access route alternatives are being considered. Likely an increase in paved surface.
8. Southwest ramp expansion: The area encompasses existing hangars and parking area adjacent to the southwest ramp. The proposal is to remove the existing structures and reconfigure the area to provide efficient apron and hangar space. Most of this area is impervious surfaces but some turf in this area would be paved.
9. Replace Aircraft Rescue and Fire Fighting Trucks: This project would not impact natural resources.
10. Construct new aircraft hangars: The existing T-hangars are fully occupied, and the airport lacks space for larger corporate jet aircraft. One hangar is proposed short-term adjacent to the southeast ramp. The master plan provides space for a total of four hangars as a long-term need. The exact locations and dimensions have not been determined.

For coordination with NHESP, all impacts should be defined and shown on plans. Past mitigation measures should also be shown on plans. Excess mitigation could be part of the discussion. None of these airport projects are likely to be advanced for permitting and construction prior to the NEPA/MEPA EA/EIR process being completed.

Business Park Lots 34 and 38

Lots 34 and 38 are within Priority Habitat and were developed within the last several years. The consultants have not been able to find MESA approvals for these lots. The airport is not proposing any other Business Park development in Priority Habitat at this time.

Ways to permit the work were discussed. The lots are relatively small (approximately 1.2 acres combined) and rare plants are not an issue, so it may be possible to avoid a finding of a taking. However, some mitigation would likely be needed, possibly tied to the other proposed airport projects. The suitability of using past “excess” mitigation was discussed, but Mr. Doucette

noted that FAA-funded mitigation for aviation purposes might not be appropriate for non-aviation development. Ms. Richart noted the importance of the development for the viability of the airport and asked that this be advanced as quickly as possible.

Action Items

MJ will continue to develop plans with footprints for the CIP projects.

MJ will determine whether there is past “surplus” mitigation and will discuss with FAA and the airport whether it is appropriate to use it for mitigating the lot 34/38 impacts.

Ms. Hoenig will investigate the most appropriate and expedient permitting approach for lots 34 and 38. (After the meeting, Ms. Hoenig looked into past precedent for this kind of situation and recommended that the project be advanced with a request to amend the existing Conservation and Management Permit.)



Public Archaeology Laboratory
March 1, 2019

Brona Simon
State Archaeologist
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, Massachusetts 02125

Attn: Jonathan Patton

Re: Martha's Vineyard Airport Capital Improvement Plan Project
West Tisbury and Edgartown, Massachusetts
Archaeological Sensitivity Assessment and
Intensive (locational) Archaeological Survey
MHC #RC.48090, PAL #3602

Dear Ms. Simon:

Enclosed please find a technical memorandum entitled *Archaeological Sensitivity Assessment, Martha's Vineyard Airport Capital Improvement Plan, West Tisbury and Edgartown, Massachusetts* for your review and comment. PAL is assisting the Martha's Vineyard Airport Commission with this project and has recommended that limited portions of two of the proposed project impact areas are archaeologically sensitive. Enclosed also please find an application for a permit to conduct an Intensive (locational) Archaeological Survey as part of the Project. The project area is located on the Edgartown and Vineyard Haven, Massachusetts topographic quadrangles. We would like to begin investigations as soon as possible. Thank you in advance for your time and attention to this matter.

If you have any questions or need further information, please do not hesitate to contact Holly Herbster, Principal Investigator, at your convenience.

Sincerely,

Deborah C. Cox, RPA
President

Enclosure

cc: Jed Merrow, McFarland Johnson (w/encl. - via email)



The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

February 25, 2019

Jed Merrow
Project Manager
McFarland Johnson
53 Regional Drive
Concord, NH 03301

RE: Martha's Vineyard Airport, Capital Improvement Plan Projects and Well House Demolition, West Tisbury and Edgartown, MA. MHC #RC.48090/2664. **EEA #15964.**

Dear Mr. Merrow:


Thank you for submitting additional information to the Massachusetts Historical Commission (MHC), received February 13 and 20, 2019, for the projects referenced above.

The project impact area proposed for demolition of the decommissioned well house at the intersection of South Line Road and Barnes Road has been previously disturbed during airport construction activities and therefore possesses low archaeological sensitivity. The well house is not included in the MHC's Inventory and does not, in the MHC's staff opinion, meet the criteria of evaluation (36 CFR 60) for listing in the National Register of Historic Places.

The Capital Improvements project includes nine separate projects associated with runway safety, taxiways and structure improvements. The MHC looks forward to reviewing additional information that is responsive to the MHC's February 7, 2019 comments for the capital improvements project, including the PAL's archaeological sensitivity assessment and State Archaeologist's permit application (950 CMR 70) to conduct intensive (locational) archaeological survey within archaeologically sensitive project impact areas. The results of the survey will provide information to assist in consultation to consider alternatives to avoid, minimize, or mitigate any adverse effects to significant historic and archaeological resources.

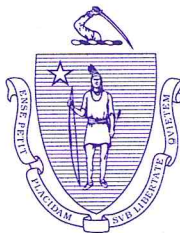
These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), and/or Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 70-71) and MEPA (301 CMR 11). If you have any questions concerning this review, please contact Jonathan K. Patton, Archaeologist/Preservation Planner at this office.

Sincerely,

 Edward L. Bell, DSGTPO

for: Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

XC: Ann B. Richart, Director, Martha's Vineyard Airport
Richard Doucette, FAA
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
David Weeden, Mashpee Wampanoag Tribe
Massachusetts Aeronautics Commission
Deborah C. Cox, PAL, Attn: Holly Herbster



The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

PERMIT TO CONDUCT ARCHAEOLOGICAL FIELD INVESTIGATION

Permit Number 3909 Date of Issue March 25, 2019
Expiration Date March 25, 2020

PAL is hereby
authorized to conduct an archaeological field investigation pursuant to
Section 27C of Chapter 9 of General Laws and according to the regulations
outlined in 950 CMR 70.00.

Martha's Vineyard Airport Capital Improvement Project,
West Tisbury & Edgartown

Project Location

Brona Simon

Brona Simon, State Archaeologist
Massachusetts Historical Commission



The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

August 12, 2019

Jed Merrow
Project Manager
McFarland Johnson
53 Regional Drive
Concord, NH 03301

RE: Martha's Vineyard Airport, Capital Improvement Plan Projects and Well House Demolition,
West Tisbury, and Edgartown, MA. MHC #RC.48090/2664. EEA #15964.

Dear Mr. Merrow:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the archaeological report, Addendum, *Intensive (Locational) Archaeological Survey, Martha's Vineyard Airport Capital Improvements Plan, West Tisbury and Edgartown, Massachusetts*, prepared and submitted by the PAL, received July 15, 2019, for the project referenced above.

The intensive (locational) archaeological survey for the project yielded no historic or archaeological resources. Since no significant historic or archaeological resources were identified within the project impact area no further archaeological survey is recommended for the project, as proposed.

In the MHC's staff opinion, the project as proposed is unlikely to affect significant historic or archaeological resources. If project plans change in future, then current project information should be submitted to the MHC for review and comment.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), and/or M.G.L Chapter 9, Sections 26-27C (950 CMR 70-71) and/or MEPA (301 CMR 11). If you have any questions or require additional information, please contact Jonathan K. Patton at this office.

Sincerely,

A handwritten signature in blue ink that reads "Brona Simon".

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: Ann B. Richart, Director, Martha's Vineyard Airport
Richard Doucette, FAA
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
David Weeden, Mashpee Wampanoag Tribe
Massachusetts Aeronautics Commission
Deborah C. Cox, PAL, Attn: Holly Herbster

RECEIVED

AUG 15 2019

McFarland Johnson
Concord, NH

December 16, 2019 Telecon

Attendants

Martha's Vineyard: Cindi Martin, Geoff Freeman

FAA: None.

MassDOT: Owen Silbaugh, Nate Rawding, Mike Garity

McFarland Johnson: Rich Lasdin, Matt O'Brien, Jed Merrow

Obstruction Description and Background

MJ explained the graphics which showed dots, without hatches for identification of obstructions. Also shown was the Exhibit A property map. A graphic was also shown using 2012 data and an anticipated obstruction clearing based on 2012 data. Jed provided an assessment on the vegetation based on his field observations.

DCR requested a breakdown of dot vs. trees. Timeline was discussed assuming trees were required by FAA to be cleared for 2020 commercial service starts for the season. May 15th was the date discussed. Runway 24 threshold siting surface was considered an emergency as FAA Airports requires this area to be clear of obstructions. Part 77, Departure, and other airspace was considered non-emergency at this time.

RW 15/33 area records indicates that this area has been untouched historically.

Cutting

Proposed cutting is anticipated to introduce habitat to manage low growth species. This may be a good opportunity for both the species and the airport as there are a lot of rare plants along the fire lanes. DCR requires a meeting with Natural Heritage and Endangered Species Program (NHESP).

Regulatory

The following list are the regulatory hurdles anticipated for the tree clearing:

- MESA
 - Trails are hot spots for rare species.
- Northern Long-eared Bats
- MEPA/NEPA
- Article 97 – areas with no easements
 - DCR has experience with Article 97 and will need to consult their attorneys
 - DCR has alternative means to mitigate for this regulatory need

- Need plans with impacts, Change in community, acreage.

DCR will need to review the legal parameters and permit construction access permit access.

DCR requested that NHESP and DCR be copied on correspondence together.

Schedule

MEPA is underway. Anticipate an EIR in the spring of 2020 including this cutting.

Cutting will be subject to time-of-year restrictions by NHESP

Management/Plans

DCR has an existing habitat management plan for Fire Lanes due to rare plant. Mowing regimen approved by NHESP.

DCR has a Master plan which call for more cutting. DCR would like to see more open land.

Bat Data – acoustic monitoring was not conducted by DCR, but by other biologist for years. NHESP should have this. DCR can provide the contact name.

Next Steps

Provide proposed obstruction removal plans to DCR. Coordinate a site walk to discuss areas of impact.

DCR requires specifics from NHESP. Include Paul Gregory in these discussions.

MJ to keep working on developing proposed obstruction clearing plans.



MEETING NOTES

DATE: January 8, 2020

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport 5-year CIP EA/EIR and Obstruction Removal

ATTENDEES:

Richard Doucette, FAA
Michelle Ricci, FAA
Tom Mahoney, MassDOT
Owen Silbaugh, MassDOT

Cindi Martin, Martha's Vineyard Airport
Jed Merrow, McFarland Johnson (MJ)
Matthew O'Brien, MJ

The call was held to discuss tree obstructions at Martha's Vineyard Airport and the graphics to be shared with environmental agencies.

Jed Merrow noted that most of the obstructions off airport property are on State Forest land; some of the State Forest land has easements; some is native sand barrens habitat that has not historically been cut; and nearly all is Priority Habitat of Rare Species. Most of the rare species are moths, but some other plant and animal species may occur there. Cutting would probably improve the habitat for moths.

Matt O'Brien described the 2019 obstruction mapping that was previously distributed. The plan sheets show all trees above and within 10 feet below protected surfaces. There are two plans for each approach, split up to reduce clutter. Owen Silbaugh liked the plans as a final product but thought they should be simplified for general distribution. Owen also suggested that more detail be conveyed within the hatched areas, specifically showing the limits of current penetrations, within five feet below and within 10 feet below the approach surface.

MJ is comparing the 2012 and 2019 data to determine tree growth rates. Jed compared the heights of 21 trees that were measured in both 2012 and 2019 in the Runway 15 approach, which has not historically been cut. The change in height ranged from -1 to 7 feet, averaging 3.6 feet or 0.5 feet per year. The Runway 24 end has white pine which is probably growing faster. Since some areas are slow-growing, the plans should show trees 5 feet below surfaces as well as 10 feet. Michelle suggested not to cut vegetation that will take very many years to become an obstruction, and noted that the arbitrary 10 feet number should be justified.

Regulatory implications of clearing were discussed:

- MESA and MEPA apply to clearing regardless of property lines or easements.

- Section 4(f) of the U.S. DOT Act applies to “uses” of parks and wildlife refuges. It would not apply to easement areas in this case. Impacts proposed on the State Forest would require demonstration that no other feasible or prudent alternative is possible. The minimum clearing required for safety might be allowable, but clearing Part 77 would probably be unacceptable. Clearing would have to be limited to that necessary to meet required safety standards and grant assurances. Grant assurances require consideration of “operational” surfaces. **The minimum surfaces to clear are probably those required in the Design AC Table 3-2 and Engineering Brief 99. It was noted that the departure surface is included in Engineering Brief 99, and it covers a broad area.**
- Article 97 of the state constitution states that “Lands and easements taken or acquired for such purposes [conservation etc.] shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote... of each branch of the general court [state legislature].” MEPA has an Article 97 Land Disposition Policy with additional requirements. Article 97 appears to pertain to transfer of ownership or easements.

There was discussion of the easement for the Runway 24 end, which states “the airspace may be used for the unobstructed and unrestricted flight of aircraft at any altitude or height... It will not... permit any growths thereon...” “It” appears to refer to the state. Richard thinks that FAA will offer to fund the cutting this round on Runway 24, but would like to see DCR meet their deeded obligation in the future.

Richard and Michelle will meet with John Merck to discuss what is required or critical for safety. They will also approach FAA’s Flight Procedures staff to see if procedures can be modified to allow less clearing. Owen recommended taking actual operations into account, such as the numbers and sizes of aircraft known to use the runways. Once the required/preferred clearing areas are determined, two sets of plans could be developed: one showing all areas that would be cleared if all surfaces including Part 77 were addressed, and one showing only “operational” surfaces, excluding Part 77.

For now, MJ was directed to revise the obstruction plans for coordinating with environmental agencies for MEPA/NEPA to include Design AC Table 3-2 (as amended by Engineering Brief 99) Row 4, Row 5, Row 6 and Departure Surface. This would eliminate Part 77 approach and transitional surfaces. FAA discussions could result in further changes.

The eligibility of future FAA funding was discussed, particularly if not all obstructions are cut now. Areas not being addressed would need to be clearly delineated, and could be eligible in the future. If they are just lower trees in the cutting area, future eligibility is more questionable. The airport and MassDOT have limited resources to pay for obstruction removal and maintenance.

Runway 15-33 alternatives were discussed in light of the sensitive habitat off the 15 end. MJ has been looking at a runway shift, displaced thresholds, and raising the threshold elevation. Although not in the Master Plan, this is necessary to address the “feasible and prudent” requirement of Section 4(f). It was noted that other actions, such as a Master Plan or ALP

Update, might be needed for changes to the runway. Justification for the crosswind runway may also be necessary.

Richard noted that the work could be phased if some runway ends would take longer than others to get approvals. The Runway 15 end threshold could be temporarily displaced.

Owen recommended that FAA look at PAPI impacts on clearing, and referenced Engineering Brief 95.

The group agreed to reconvene by phone on Jan. 17 to provide updates and discuss clearing areas to propose, after which a resource agency meeting could be set up.

Action Items

- MJ will revise obstruction graphics based on Table 3-2 and Engineering Brief 99 referenced above, and will show trees which penetrate surfaces, are within 5 feet, and are within 10 feet, coded by color.
- FAA will meet internally to discuss which obstruction areas are most critical for safety and whether some of the areas can be addressed with procedures.



MEETING NOTES

DATE: March 24, 2020 10:00AM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport 5-year CIP EA/EIR and Obstruction Removal

ATTENDEES:

Richard Doucette, FAA
John Merck, FAA
Tom Mahoney, MassDOT
Owen Silbaugh, MassDOT
Nate Rawding, MassDOT

Cindi Martin, Martha's Vineyard Airport
Jed Merrow, McFarland Johnson (MJ)
Matthew O'Brien, MJ
Rich Lasdin, MJ

The call was held to prepare for the April 1 meeting with the Dept. of Conservation and Recreation (DCR) and Natural Heritage and Endangered Species Program (NHESP) regarding tree obstructions at Martha's Vineyard Airport. A draft agenda/outline and graphics of obstructions at the four runway ends were circulated prior to the meeting. The notes below follow the agenda items.

1. FAA protected airspace and
2. Determination of critical airspace to keep clear at the airport

The April 1 meeting would start with a brief description of the concept of protected airspace. FAA suggested, "These are required by FAA to keep concurrent with the grant assurances." However, be prepared to discuss if they ask specific questions. We will note that there are many kinds of protected airspace and clearing some of them would require much more extensive clearing than we are proposing. A graphic of Part 77 clearing will be shown to illustrate this. We will note that we are proposing clearing more or less the minimum allowable under FAA guidelines. We should not state or promise that Part 77 will never be cleared, as it may be required at some point.

3. How tree obstructions were determined and what they mean

We will describe how tree growth rates were estimated based on 2010 and 2019 data, and 2019 heights were extrapolated to determine obstructions within 10 years. The data were derived from a grid and the points may represent individual trees or clusters of trees; they do not reflect the number of trees that need to be cut.

4. Discuss obstructions and alternatives in each runway approach

The graphics showing obstructions within the four runway approaches were viewed in turn:

- Runway 6: only one location, along road
- Runway 24:
 - Most of clearing is within the easement but some is outside of it.
 - Clearing outside the easement could trigger Article 97.
 - Part of the area is white pine-dominated and the State Forest staff have indicated they are interested in restoring it to sandplain habitat.
 - The lateral areas are mostly natural or native habitat with some non-native conifers invading.
 - The easement deed states the state is required to keep it clear for airport purposes.
 - Photos of potential clearing areas would be helpful.
- Runway 15: A relatively small area of clearing is shown on State Forest land, in habitat that has been little altered historically. There is no easement for clearing here. It would be a Section 4(f) use and clearing could trigger Article 97. Section 4(f) requires consideration of alternatives, which gets into Runway 15-33 alternatives.
- Runway 33: This is entirely on airport property. It is relatively undisturbed habitat but surrounded by development so probably does not have as high habitat value as the Runway 15 end. May look at shifting the Runway south. Similar habitat, however more fragmented due to being on airport property. MassDOT: Trees keep growing, so a shift is only a temporary fix. FAA: Section 4(f) requires that we look at the avoidance.
- Richard asked if there were trees suitable for bat roosting habitat, such as old trees with peeling bark or knotholes. The trees are mostly oaks with some pitch pine and planted conifers. Most trees do not have noticeably shaggy or peeling bark, but some of the oak bark is platy and peeling. This may need further review.
- Nate Rawding noted that trees will continue growing, and avoiding clearing in one area now (such as by shifting the runway) may not prevent it from needing clearing in future years.
- If FAA is to pay for clearing off airport property and outside of easements, they would need ownership, an easement, or some other kind of formal agreement. The airport or State Forest could implement or pay for the clearing without FAA funding.

5. How to quantify and evaluate impacts; information needed

We will note again that the number of trees cannot be quantified, but acreage could be, and perhaps there could be an estimate of number of trees.

We would like to know what information the DCR and NHESP would like to have on the proposed clearing areas within their jurisdiction. We would rather not suggest what we could provide, because we have no idea what level of detail they might want. We have information on the general vegetation community composition and character within each clearing area. If more detailed vegetation community, rare species or other studies are needed, they might

need to be done this summer, in which case they should be included in the work being scoped not for the upcoming FAA grant application (for new CIP alternatives, greenhouse gas analysis and obstruction-related work).

6. Possible mitigation measures

We would discuss the kinds of mitigation measures that could be considered and the process for coming up with a reasonable and acceptable mitigation plan. It is unlikely we would come to agreement at this meeting on specific measures, but for NEPA and Section 4(f) we will eventually have to agree on a fairly specific plan, so any progress we can make in that direction would be useful.

7. Permits and approvals

8. Process going forward

The schedule was discussed in broad terms. Richard Doucette requested the overall schedule for obstruction removal, from this point to actual clearing. Richard expects it will take several months to get DCR and NHESP to agree on a clearing and mitigation plan. Article 97 is a big wild card at this point.

Elaborating on what was discussed at the meeting, the schedule is likely to be as follows:

May 2020: Submit grant application to FAA for new CIP alternatives, greenhouse gas and obstruction analyses

Summer 2020: Work with DCR and NHESP to evaluate alternatives and impacts and develop mitigation

Fall 2020: Draft EA/EIR

Winter 2020-21: Final EA/EIR

April 2021: Final FONSI and MEPA Certificate

May 2021: Submit grant application to FAA for permitting

October 2021: Receive Conservation and Management Permit from NHESP (unless Article 97 required)

Spring 2022: Design and bid obstruction removal

May 2022: Submit grant application to FAA for obstruction removal

Winter 2022-2023: Remove obstructions

Action Items

- MJ to revise and circulate April 1 meeting agenda (attached).
- MJ will prepare a presentation for the DCR/NHESP meeting, to include an example of Part 77 clearing; proposed clearing; and photographs of each runway approach.



MEETING NOTES

DATE: April 1, 2020 1:30PM

MJ Project No.: 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal

ATTENDEES:

Karl Pastore, MA Dept. of Conservation and
Recreation (DCR)
Paul Cavanagh, DCR
Paul Gregory, DCR
Nancy Putnam, DCR (joined in progress)
Amy Hoenig, MA Natural Heritage and
Endangered Species Program (NHESP)
Richard Doucette, FAA
John Merck, FAA

Nate Rawding, MassDOT Aeronautics
Mike Garrity, MassDOT Aeronautics
Cindi Martin, Martha's Vineyard Airport
(MVY)
Geoff Freeman, MVY
Jed Merrow, McFarland Johnson (MJ)
Matthew O'Brien, MJ
Rich Lasdin, MJ
Steve Riberdy, GZA (left early)

The call was held to discuss proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest. The proponents hoped to get some feedback on proposed alternatives and guidance on impact assessment and mitigation strategies. The airport hopes to come to agreement on not just short-term clearing needs but longer-term needs as well. The agenda is attached and the notes below follow the agenda items.

1. Determination of critical airspace to keep clear at the airport

Federal regulations known as Part 77 define airspace around every airport. Ideally all of the Part 77 airspace is kept clear of obstructions, especially if the airspace is on airport property. When FAA issues grants to airports, there are conditions that airspace be kept clear of obstructions. In practice this means the airspace surfaces that have an operational impact on aviation need to be kept clear. Surfaces are defined in the FAA's Airport Design Advisory Circular.

The defined surfaces do not change often – occasionally when FAA changes the Advisory Circular; if an airport's navigational equipment changes; or if an accident somewhere leads to different requirements.

For this airport, FAA, MassDOT and the airport discussed which were the critical operational surfaces at the airport. The proposed clearing represents those surfaces, which are much less

than the Part 77 and other surfaces that could be cleared. They are not expected to change in the near future.

2. How tree obstructions were determined and what they mean

Surveyed tree height for 2010 and 2019 were compared. The change in tree height at each point was calculated and converted to growth per year. The growth rates were averaged for all the points within each runway approach, then applied to all the trees within each approach. Growth rates ranged from 0.5 feet per year (north of the Runway 15 end) to nearly 2 feet per year (Runway 24 end in the white pine area).

Areas to clear were determined by applying growth rates over 10 years. Traditional obstruction management would propose cutting all trees within 10 feet of the airspace surface. At this airport, the traditional approach would result in more clearing in the slower-growing tree stands (Runways 6, 15, and 33, and the sides of Runway 24), and less clearing off the end of 24.

The points may represent individual trees or clusters of trees. The yellow and red polygons show the approximate areas where there are multiple tree obstructions, red currently penetrating and yellow within 10 years. The exact number of trees to be cut is determined with the help of a surveyor during the actual tree cutting operation.

Nate Rawding asked whether the estimate of tree growth accounts for more sunlight and less biological competition which would improve the growth rate. It does not, but future vegetation management planning should consider that.

3. Discuss obstructions and alternatives in each runway approach, on and off airport property

Runway 6 Approach

There is only one data point identified, on airport property.

Runway 24 Approach

Runway 24 is the most important and most frequently used approach at the airport. There are meteorological conditions that can limit the use of the airport to only this runway approach, as it allows flying in poor visibility.

There is an easement on the State Forest providing for unobstructed airspace. The language (attached) states there shall be no buildings, growths, or assembly of persons on the easement area. The Runway 24 approach requires cutting on State Forest both within and outside the easement.

Conversion of state-owned conservation or recreation land triggers Article 97. FAA does not believe that cutting within the easement would require Article 97, but clearing outside of that

might. This needs to be determined. Paul Cavanagh made reference to two acts of the legislature pertaining to clearing within airport easements (also attached). There needs to be further review of deeds, easements and state acts, along with conversations with the DCR attorneys.

It was noted that landscape designations have been applied to state conservation land. There are three categories: Parkland, Woodland, and Reserve. There are exemptions specifying what activities can occur within each category. The Reserve category probably allows tree removal in easement areas or hazardous trees that pose a significant risk to the public. To alter designated land, one would have to appear before DCR's Forest Reserve Science Advisory Council (FRSAC), which meets approximately twice per year and is next scheduled to meet in mid-April. Peter Church is the Director of Forest Stewardship. Nancy will send his contact information to MJ.

It was noted there is a "no-cut buffer" along the airport side of Barnes Road in this area. This buffer was reportedly established as compensation for past airport impacts to State Forest land. There are obstructions in this area and cutting would presumably require an agreement with DCR and some sort of mitigation. This needs further investigation.

Paul Cavanagh referred to the Green Docket Process, an expedited agency review process. MJ will work with DCR to investigate its applicability to this project.

Jed Merrow suggested there is a potential "win-win" solution for clearing this area, as it could remove a monotypic tree stand and establish a more natural sandplain vegetation community, which would support rare species and which the State Forest managers might prefer. Paul Gregory thought that might be appropriate, assuming it improves rare species habitat and NHESP approves. Amy Hoenig stated that it could benefit some of the many rare species found in this general area. However, some of the proposed clearing area is a more typical native oak tree/shrub community, and both trees and shrubs support rare moth species.

Runway 15 Approach

There is no record of clearing, planting or fire within the left "diamond" (directly off the runway end). The area is a mixture of post, white and black oak trees and scrub oak thickets. The lower diamond (northwest of the runway end) had a tree clearing operation in the recent past. There is a management plan for the fire lanes for the purpose of rare species management.

There are no clearing easements in this area, so the clearing would trigger Section 4(f) of the U.S. Department of Transportation Act. Section 4(f) regulates the "use" of certain resources, including wildlife refuges and recreational parks. The Act requires that all prudent and feasible alternatives to use of the resource be considered. These alternatives could include raising the runway elevation (to reduce the clearing needed), shifting the runway away from the State Forest, or other measures. DCR will need to provide input on alternatives, and if agreement cannot be reached, then the FAA cannot conduct the clearing. DCR would need to consult with their legal counsel regarding Section 4(f).

Runway 33 Approach

There is a relatively small area of proposed clearing and it is all on airport property. The habitat is native post/white/black/scrub oak but it is surrounded by roads and developed lands so probably has lower ecological value than the State Forest land on the Runway 15 end. Shifting Runway 15-33 south would result in more trees to be cleared on the 33 end and fewer on the 15 end. Amy Hoenig noted that any shift in the runway would result in rare species and habitat impacts, and possibly a take, that would require a Conservation and Management Permit.

The federally listed northern long-eared bat occurs on the island. It is unclear whether the trees found in the airport vicinity provide suitable habitat.

4. How to quantify and evaluate impacts; information needed

The entire project is within designated Priority Habitat of Rare Species and includes areas of Estimated Habitat of Rare Wildlife. MJ has calculated acreage of clearing as an indication of approximate impacts, but there is no way of confirming the exact number of trees.

Amy Hoenig noted that pitch pine is habitat for the state-endangered imperial moth; and there are potential benefits for removal of white pine. She recommended the airport identify access routes and staging areas; identify the time of year of tree removal; herbicide usage; and what and where long-term management would occur. It is possible a rare plant survey would be required, but NHESP needs to learn more about what is proposed first. It may be appropriate to assume some level of survey, although they may not be needed at this stage of the project.

DCR staff would like information on acreage affected; how many days areas would be closed to recreation; if buffers would be needed; and what trails would be affected. Chris Bruno has provided a trail map to MJ. There are some user-created trails on DCR property that are not mapped, but DCR is not as concerned about user-defined trails if they are not supposed to be there in the first place.

Amy asked whether any lower-growing vegetation will be cut. On the Runway 15 end, the red-shaded areas flanking the runway are within the Runway Object Free Area (ROFA), which needs to be cut to 4 inches or lower. This would probably be mowed annually; the proposed vegetation and management would need to be addressed.

DCR (Nancy) would like to see a natural community survey completed by an ecologist, with data on the plant species found in different vegetation communities. The NHESP forms (2 or 3) should be used. The survey can take place any time during the growing season, and possibly as early as May. There should be representative photos and descriptions of distinct vegetation communities. The proposed survey methods can be emailed to NHESP and DCR for comment.

5. Possible mitigation measures

Tree removal methods were discussed. Work is most often done in winter, ideally on frozen ground, which would have the least impact on rare plants. Herbicides may be applied to cut stumps to prevent sprouting. Tree cutting and removal methods have not yet been considered. On the State Forest at the Runway 15 end, red pines were cut and moved with feller-bunchers and skidders, brought to a log landing, and a crane fed the whole trees into a chipper, after which chips were trucked away. Jed Merrow noted that he saw little evidence of the cutting or equipment operation in his recent field visit to this area. Amy noted that leaving chips on site could adversely affect rare plant species and habitat.

Habitat restoration was discussed. Where there is good native vegetation cover in the understory, it may only be necessary to remove non-native or tall-growing species, but no planting should be necessary. Where there is no understory, as in the white pine area, the pines could be cut, vegetation allowed to grow for one or two seasons, then mow or burn the vegetation. This should encourage a more typical native sandplain plant community.

Monitoring should continue for 5 years.

6. Process going forward

- MJ will continue coordinating with DCR and NHESP to evaluate alternatives and impacts and develop mitigation. A regular meeting of the key parties was suggested, to include at least Nancy Putnam, Amy Hoenig, Richard Doucette, Nate Rawding, the airport, and MJ. Others would be kept in the loop.
- MJ will develop a scope of work for these tasks and continue working on the overall project environmental process and documents to satisfy NEPA and MEPA.
- MJ will investigate Article 97, acts of the legislature, and other legal and regulatory documents and requirements.
- MJ and subconsultant GZA will conduct necessary ecological studies for the tree obstruction work.

Action Items

- DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church.
- MJ will further review deeds, easements and state legislative acts, and initiate conversations with the DCR attorneys.
- MJ will work with DCR to investigate the Green Docket Process's applicability to this project.
- MJ will investigate the implications of cutting in the "no-cut buffer" along the airport side of Barnes Road.



MEETING NOTES

DATE: April 7, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport CIP Projects EA/EIR – rare species surveys

ATTENDEES:

Amy Hoenig, MA Natural Heritage and
Endangered Species Program (NHESP)
Jed Merrow, McFarland Johnson (MJ)

Matthew O'Brien, MJ
Steve Riberdy, GZA

The call was held to discuss rare species studies undertaken and needed for the above project.

Rare plant species were surveyed in project impact areas in 2012/2013 and 2017. The surveys included a thorough review for rare plants then listed. Exact numbers of plants were not determined but individual plants and colonies of plants were identified and mapped.

New projects have come up since the original study areas were determined. These include:

- Runway 6-24 ground obstructions – These are grass areas that do not meet FAA guidance on primary surface elevations and safety area grading. (The primary surface surrounds the runway and is at the elevation of the runway centerline. The safety area also surrounds the runway and is intended to support aircraft that leave the runway.) The ground obstructions shown on plans will change but this general area needs to be reviewed for rare plants.
- Taxiway E – This is not a new project but new locations are possible. The taxiway could be relocated on either side of Runway 15-33, but Matt thinks the northeast side alternative will not be carried forward. If it is retained, prior surveys extended to the tree line, and additional tree or shrub areas that will be affected will need to be looked at for moth habitat. An “elbow” has been added where it connects with Runway 6-24, expanding the rare species study area.
- Southwest ramp – There are grass and tree areas between the pavement and buildings that should be checked for rare plants and habitat.
- Tree obstruction areas – We will be describing the natural communities in accordance with NHESP guidance. Rare plants and the host plants of rare species will be identified, but there will not be a comprehensive survey for rare plants or host plants. Make sure to note pitch pine presence. No trapping or survey of rare animals is necessary.

- Runway 15-33 shift – The runway could be shifted to the southeast to minimize impacts to the State Forest off the Runway 15 end. To accommodate this potential shift, the consultants will review the habitat 300 feet into the wooded area on the Runway 33 end.

Other topics addressed include:

- The current level of effort needs to be sufficient to characterize the habitat, determine whether rare species are present, and define impacts. For permitting, NHESP needs to have a solid estimate of numbers of protected plants affected. The information could be obtained this summer, as part of the EA/EIR studies, or at a later date. As it stands, we would do the additional preliminary surveys and assessments this summer (some of them were completed in previous years); survey final impact areas next year for permitting purposes; and do a pre-construction review as projects come up. The consultants will probably continue with this approach, as much of the preliminary survey has been completed. It was acknowledged that the COVID situation could affect this field season.
- It is also helpful to know the extent of the rest of the rare plant populations to determine relative impact. It is not necessary to look at the entire airport, but try to get an idea of the populations' broader contexts.
- Bats were discussed. Amy has refined mapping of bat locations. Steve proposes doing a Phase I level habitat assessment and no acoustic survey. Amy will look into requirements.
- MJ and GZA will submit a new information request to update the rare species list.

Action Items

- Amy will look into bat locations and survey requirements.
- MJ and GZA will submit a new information request to update the rare species list.



MEETING NOTES

DATE: April 29, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Paul Cavanagh (for Nancy Putnam), MA
Dept. of Conservation and Recreation (DCR)
Amy Hoenig, MA Natural Heritage and
Endangered Species Program (NHESP)
Richard Doucette, FAA
Tom Mahoney, MassDOT Aeronautics

Cindi Martin, Martha's Vineyard Airport
(MVY)
Geoff Freeman, MVY
Jed Merrow, McFarland Johnson (MJ)
Matthew O'Brien, MJ
Rich Lasdin, MJ

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

At the prior meeting held on 4/1/2020, we discussed how the airport surfaces to keep clear were based on a review of the range of surfaces which may need to be kept clear. Those proposed to be cleared were essentially the minimum needed to maintain current airport operations. Trees needing to be cleared are those that are projected to penetrate the aviation surfaces within 10- years' time. This was determined by comparing 2010 and 2019 tree heights, calculating the average annual growth rate, and projecting the tree heights 10 years later based on the growth rates. This was done separately for each runway approach.

Action items from the last meeting included:

- *DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church.* Update: Paul Cavanagh will follow up.
- *MJ will further review deeds, easements and state legislative acts, and initiate conversations with the DCR attorneys.* Update: The review is ongoing.
- *MJ will work with DCR to investigate the Green Docket Process's applicability to this project.* Update: Nancy Putnam reported that the Green Docket Process is not applicable to this project. However, DCR needs to review and approve permit applications before they are submitted to other agencies.
- *MJ will investigate the implications of cutting in the "no-cut buffer" along the airport side of Barnes Road.* Update: MJ is investigating.

Graphics showing the proposed tree clearing areas within each of the four airport runway approaches were viewed. In the Runway 24 and 15 approaches, clearing is proposed within the State Forest. The approximate clearing acreages are shown below.

		Runway 6	Runway 24	Runway 15	Runway 33	Totals
All 10-year Vegetation Obstructions (Yellow + Orange)	On Airport	(1 obstruction)	1.86	1.97	0.26	4.09
	Easement on State Forest	-	10.51	-	-	10.51
	State Forest / No Easement	-	1.53	1.50	-	3.03
	Total	(1 obstruction)	13.90	3.47	0.26	17.63

MJ has submitted a proposal to the airport, FAA and MassDOT to continue studies relating to this project. It includes a scope of work for GZA GeoEnvironmental to conduct rare species and habitat studies in potential impact areas. Their work includes:

- Update Natural Heritage information request to bring the information up to date and extend coverage to the tree clearing areas.
- Develop rare species and habitat survey protocols in consultation with NHESP.
- Conduct rare plant surveys in grassland areas.
- Conduct a natural community assessment, rare moth host plant review, and northern long-eared bat habitat assessment based on fieldwork.
- Assess potential habitat for rare birds and the rare purple tiger beetle.

Possible mitigation measures were briefly discussed. It was agreed that more information would be needed on the impacted areas before mitigation can be addressed in detail. In general, however:

- Time of year restrictions would probably be followed and would probably help minimize impacts. There could be multiple, overlapping recommended time windows depending on species and habitat impacts. Winter is generally preferred from both a logging perspective and a resource impact perspective. The ground is unlikely to be deeply frozen on the island, however.
- Tree cutting and removal methods will be explored. Heavy equipment was used in a prior State Forest logging operation, but could have some soil disturbance. Paul and Amy would like to see what is proposed before commenting.
- Paul Gregory is involved in pine barrens habitat restoration work in Myles Standish State Forest and would be a useful resource.

Post-clearing monitoring would be needed to identify invasive species, undesirable native vegetation, overall progress, and vegetation management needs.

Action Items

- DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church.
- MJ will continue reviewing deeds, easements and state legislative acts, including the “no-cut buffer” along the airport side of Barnes Road; and will initiate conversations with the DCR attorneys.
- MJ and GZA will conduct habitat assessments and rare species surveys when they are under contract and able to travel.
- MJ will continue working on design alternatives and provide as they become available.



MEETING NOTES

DATE: May 27, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Shaun Provenchur, MA Dept. of Conservation and Recreation (DCR)	Cindi Martin, Martha's Vineyard Airport (MVY)
Richard Doucette, FAA	Geoff Freeman, MVY
Nate Rawding, MassDOT Aeronautics	Jed Merrow, McFarland Johnson (MJ)

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- *DCR will provide MJ with contact information for DCR land use attorneys or specialists and for Peter Church. (Completed)*
- *MJ will continue reviewing deeds, easements, and state legislative acts, including the "no-cut buffer" along the airport side of Barnes Road; and will initiate conversations with the DCR attorneys. (MJ is preparing a summary of deed provisions. Jed spoke with Shaun Provenchur of DCR; see below.)*
- *MJ and GZA will conduct habitat assessments and rare species surveys when they are under contract and able to travel. (The scope and fee for this work has been agreed to in principle and a grant application has been submitted to FAA; awaiting the FAA grant.)*
- *MJ will continue working on design alternatives and provide as they become available. (ongoing)*

Jed Merrow spoke with Shaun Provenchur, land protection planner for the Southeast Region at DCR, about the applicability of Article 97. Jed summarized the key points as follows:

- If the project is periodic vegetation management, an easement would be needed, and any clearing easement would trigger Article 97.
- If it's a one-time event, DCR may be able to permit work under a "Construction Access Permit". The applicability of the Construction Access Permit can depend on habitat quality and who benefits:

- If the habitat is “pristine”, it’s likely to require Article 97. The Runway 15 end State Forest land is relatively undisturbed and is designated as “Forest Reserve”, a restrictive category, so clearing would probably trigger Article 97. If an ecologist determines the habitat value will not be adversely impacted, then DCR may be able to issue a Construction Access Permit. Shaun will discuss this with DCR ecologist Nancy Putnam and NHESP’s Amy Hoenig, since it’s all Priority Habitat.
- An alternative may be topping or trimming trees. Again, this depends on the ecological impact. Following the meeting, Nate Rawding offered the following elaboration regarding tree topping and vegetation management generally:

While I agree with the need to research this analysis, I don't think it will be likely to be feasible, as it does not solve the issue of reoccurring obstructions/hazards to the airspace and flying public from trees that will eventually regrow.

Additionally, we have not much talked about the desired future conditions of the cutting areas, including easement area, and areas of RW 15 end, but we should at some point discuss the need for the areas to be maintainable by the airport. This is because the FAA will only pay once to have an area of obstructions removed/cut. If it is not left in a maintainable state, new obstructions/hazards will take place, and will not be eligible for FAA funding. I mention this as it is an ongoing issue with our GA airports across the state.

I understand the needs of DCR and NHESP, and can/will work with them both to make sure we are environmental stewards but also, meet the needs of aviation safety for the flying public.

- If the habitat is disturbed and could benefit from restoration, then perhaps the restoration could be done for DCR as part of the clearing project. The Runway 24 end is more disturbed, although the proposed cutting outside the easement area is not as disturbed as most of the easement area. (Much of the easement area is a homogeneous white pine stand.)

To complete the Article 97 process, the following steps would be required:

- Prove there are no feasible alternatives to the impact. MJ is investigating modifications to Runway 15-3 that might lessen the State Forest impact. Nate Rawding cautioned that runway modifications might result in delaying rather than eliminating State Forest impacts. The alternatives analysis should shed light on this.
- Get agreement on acceptable mitigation, which may include mitigating for a multiple of the impact acreage; replacement land; or in lieu payment. DCR must agree with the proposal.
- Get approval from DCR at the Secretary level.
- Get a 2/3 vote of the legislature.

- The Dept. of Capital Asset Management handles the legal/business aspects: appraisals, title work, survey, etc. The project proponent pays all expenses.
- The process typically takes years, but depends on project size and complexity.
- This project is a public safety project, which could perhaps facilitate it. Incentives (more mitigation) could also help.

Action Items

- Shaun Provenchur will speak with Nancy Putnam, Amy Hoenig, and Peter Church about the proposed clearing areas and ecological implications of clearing.
- MJ will contact Peter Church about the implications of the forest classification.
- MJ will provide a summary of deeds, easements, and state legislative acts.
- MJ will investigate the feasibility of trimming or topping trees rather than wholesale tree removal.
- MJ will continue working on design alternatives that might minimize Runway 15 end clearing.



MEETING NOTES

DATE: June 24, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Shaun Provenchur, MA Dept. of
Conservation and Recreation (DCR)
Nancy Putnam, DCR
Amy Hoenig, Natural Heritage and
Endangered Species Program (NHESP)
Richard Doucette, FAA
John Merck, FAA

Tom Mahoney, MassDOT Aeronautics
Nate Rawding, MassDOT Aeronautics
Geoff Freeman, Martha's Vineyard Airport
(MVY)
Jed Merrow, McFarland Johnson (MJ)
Matt O'Brien, MJ
Rich Lasdin, MJ

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- *Shaun Provenchur will speak with Nancy Putnam, Amy Hoenig, and Peter Church about the proposed clearing areas and ecological implications of clearing.* (ongoing)
- *MJ will contact Peter Church about the implications of the forest classification.* (completed, coordination continuing; Mr. Church has been invited to these meetings)
- *MJ will provide a summary of deeds, easements, and state legislative acts.* (completed)
- *MJ will investigate the feasibility of trimming or topping trees rather than wholesale tree removal.* (ongoing)
- *MJ will continue working on design alternatives that might minimize Runway 15 end clearing.* (ongoing)

Jed Merrow recapped the last discussion, in which we discussed the applicability of Article 97. Since that meeting, Shaun has sent a briefing to DCR's legal department for review of Article 97 implications. Jed spoke with Peter Church, who sits on the Forest Reserves Science Advisory Committee (FRSAC), which reviews proposed work in Forest Reserves and makes recommendations to DCR. Peter suggested Jed sit in on the July 8 committee meeting, at which they will be discussing this project. Nancy Putnam will forward the invitation to Tom LaRosa, DCR general counsel.

DCR issues 10-year permits for activities in state forests, and Shaun and Peter looking into it.

MJ is developing alternatives that would avoid or minimize cutting outside of airport property and easements.

One alternative to wholesale tree removal would be tree topping or trimming, which might not trigger Article 97. MJ is investigating how much would need to be cut to avoid cutting again in at least 10 years. Nate Rawding noted that future maintenance should be considered for all alternatives – effort needed, frequency, cost, etc. – and should be part of the alternatives evaluation. If the clearing is such that the trees will penetrate again in 10 years, there will be more frequent cutting needed.

Shaun Provenchur noted that tree clearing is likely to trigger Article 97, but regular maintenance would also likely trigger Article 97. Nancy Putnam stated that selective clearing without a change in overall land cover might be acceptable, though this can also trigger Article 97 as “perpetual use”. Amy Hoenig noted that past maintenance could be a factor in evaluating the impact of future maintenance.

Other alternatives under consideration include shifting the useable runway at the Runway 15 end away from the State Forest 275 feet or raising the elevation of the Runway 15 end by 12 feet. Shifting the useable runway might result in more tree clearing or grassland impacts at the other end of the runway. The elevation increase would require substantial earthwork and grading, and there is no guarantee trees would not grow higher and penetrate airspace again after 10 years or so.

Nate pointed out that maintenance should occur as soon as possible after cutting, otherwise vegetation will grow up and become a problem again in 10 years, requiring more effort and greater impact to clear.

Jed summarized the vegetation management provisions of land ownership and easements:

- Runway 24 approach: the big easement allows clearing of any growths, while the 1970 legislative act allows clearing above a 50:1 surface projected from the end of the runway.
- Runway 6: The tree clearing area is airport property. The triangular easement area on State Forest land is mowed regularly and has no trees.
- Runway 15: no easements
- Runway 33: clearing area is owned by the airport

Jed asked whether, under MESA, impacts to areas that have clearing easements are regulated differently from those that do not have easements. Amy responded that they are not viewed differently in terms of impacts to state-listed species. Landowner ascent is needed.

Amy suggested that one Project Review Checklist be filed for all of the projects being proposed in the EA/EIR. This could be completed after there are footprints, with as much detail as is

available. The Conservation and Management Permit would come later. Nancy noted that DCR must review any state permit applications pertaining to DCR jurisdiction before they are formally submitted to the permitting agencies.

GZA GeoEnvironmental ecologists will be doing rare plant surveys on the airfield (for other projects) and natural community assessments in proposed clearing areas this field season.

There is still interest in a field meeting following a review of updated plans. Currently, DCR staff are allowed to attend meetings of very small numbers of people, and Nancy has attended some site meetings. The consensus was that a field meeting of 10 or fewer people would be reasonable. Attendees might include:

1. Cindi Martin, airport
2. Geoff Freeman, airport
3. Richard Doucette, FAA
4. Nate Rawding, MassDOT
5. Nancy Putnam, DCR
6. Shaun Provenchur, DCR
7. Amy Hoenig, NHESP
8. Chris Buelow, NHESP restoration ecologist
9. Jed Merrow, MJ
10. Matt O'Brien, MJ

Action Items

- Shaun Provenchur will continue coordinating with DCR staff on regulatory implications.
- MJ will sit in on the FRSAC meeting on July 8. This is the same time as our biweekly meeting, which will be rescheduled.
- MJ will continue working on alternatives that avoid or minimize clearing on State Forest outside of easements, and will distribute concepts to the group when they are ready.
- When alternatives are distributed, MJ will set up a field meeting to review the site.



MEETING NOTES

DATE: July 8, 2020 3:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Nancy Putnam, MA Dept. of Conservation
and Recreation (DCR)

Elise Stanmeyer, DCR (bat specialist)

Amy Hoenig, Natural Heritage and
Endangered Species Program (NHESP)

Tom Mahoney, MassDOT Aeronautics

Cindi Martin, Martha's Vineyard Airport
(MVY)

Jed Merrow, McFarland Johnson (MJ)

Matt O'Brien, MJ

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- *Shaun Provenchur will continue coordinating with DCR staff on regulatory implications. (Shaun spoke with DCR legal staff and coordinated with FRSAC.)*
- *MJ will sit in on the FRSAC meeting on July 8. This is the same time as our biweekly meeting, which will be rescheduled. (Completed)*
- *MJ will continue working on alternatives that avoid or minimize clearing on State Forest outside of easements, and will distribute concepts to the group when they are ready. (ongoing)*
- *When alternatives are distributed, MJ will set up a field meeting to review the site. (to be completed)*

During the last call, it was concluded that tree clearing would probably need to be done periodically, which should be done under an easement. Shaun Provenchur since spoke with DCR legal staff and confirmed that periodic vegetation management would require an easement, and an easement would trigger Article 97. However, he advised that a "revocable permit" could be issued to allow clearing to proceed in advance of formal Article 97 approval, so Article 97 does not necessarily have to hold a project up.

Jed Merrow (along with Shaun Provenchur, chair Pete Church and committee member Nancy Putnam) attended the Forest Reserve Science Advisory Committee (FRSAC) meeting, at which this project was discussed. Jed summarized the discussion as follows:

- Jed described the tree obstruction project and need, approximate impacts, and alternatives under consideration.
- Correllus State Forest is one of the more actively managed forest reserves – for fire management and habitat.
- A new or additional easement is not out of the question.
- Safety is a valid consideration.
- DCR staff need to see the natural community information to evaluate impacts and discuss mitigation.
- Article 97 requires mitigation, which could take the form of additional land, funding, work in kind, etc.
- Avoidance and minimization are important.
- They would rather not see a reduction in forest reserve acreage.

Jed reported on progress on alternatives:

- New impact acreages had been sent around. Acreages generally increased as they were applied to a larger set of trees than had been done previously.
- Revised tree clearing figures were shown.
- Runway 15-33 alternatives were shown and discussed. These will be distributed to the group as soon as the airport, FAA and MassDOT have a chance to review them. Alternatives that would affect the amount of tree clearing include:
 - o Raise the elevation of the Runway 15 end. This would also substantially increase the amount of disturbance in grassland habitat on the airfield.
 - o Displace the threshold of Runway 15-33, adding 275 feet of pavement on south end, eliminating the tree removal off the Runway 15 end but increasing the footprint in grassland.
 - o Shift the entire runway south, eliminating tree removal at the Runway 15 end but increasing it at the Runway 33 end, which is on airport property. This would substantially increase grassland impacts and be very expensive, and some trees might still need clearing further in the future.

Amy Hoenig noted that alternatives with substantially more grassland (rare plant) impact might not be permissible. If there is another alternative that is less impacting and is feasible, it should be selected. Some alternatives might result in a take but still meet permitting standards. The alternative that raises the runway elevation is of particular concern.

Amy also asked about the proposed September timing of the rare plant review. MJ will consult with GZA about that. An updated rare species list should be requested.

Action Items

- MJ will request an updated rare species list from NHESP.
- MJ will discuss with GZA the timing of the rare plant review and the natural community review.
- MJ will distribute updated Runway 15-33 alternatives, with updated clearing and grassland impact acreages, to the group as soon as the airport, FAA and MassDOT have a chance to review them.



MEETING NOTES

DATE: September 30, 2020 1:00PM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Nancy Putnam, MA Dept. of Conservation
and Recreation (DCR)

Ale Echandi, DCR (regional ecologist)

Shaun Provenchur, DCR

Amy Hoenig, Natural Heritage and
Endangered Species Program (NHESP)

Tom Mahoney, MassDOT Aeronautics

Owen Silbaugh, MassDOT

Nate Rawding, MassDOT

Richard Doucette, FAA

Geoff Freeman, Martha's Vineyard Airport
(MVY)

Jed Merrow, McFarland Johnson (MJ)

Matt O'Brien, MJ

Jordan Tate, MJ

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- *MJ will request an updated rare species list from NHESP. (Request submitted and data received.)*
- *MJ will discuss with GZA the timing of the rare plant review and the natural community review. (Natural community fieldwork completed in August and preliminary mapping distributed to this group.)*
- *MJ will distribute updated Runway 15-33 alternatives, with updated clearing and grassland impact acreages, to the group as soon as the airport, FAA and MassDOT have a chance to review them. (New alternative completed and distributed; overall impacts being tabulated.)*

Jed Merrow provided a recap of past discussions, in particular:

- The critical airspace to keep clear of obstructions is the minimum needed to maintain current aircraft activity and operations; and
- Tree obstructions were identified based on average tree growth rates in each runway approach. Tree heights from 2010 to 2019 were compared, the amount of growth calculated and converted to growth per year. The growth rates were then extrapolated over a 10-year period to determine which trees would exceed the protected airspace. In the past, airports have used the more simplistic approach of adding 10 feet of growth on all trees. The calculated "10 years of

growth” method being used here was chosen to provide results based on site-specific tree growth characteristics rather than a single growth height.

Jed said the airport, FAA and MassDOT had met several times to discuss the tree removal, and the following decisions were made:

- The “mosaic” tree removal areas previously proposed would be hard to implement in practice, as there are many small areas within and between proposed clearing areas that are not proposed to be cleared, and would be difficult to identify in the field.
- It would result in a patchwork of vegetation that would be harder to maintain and might require more tree removal in the not-too-distant future.
- Trees just outside the tree removal areas might have canopies that overlap the removal areas.
- Feasibility and cost of future maintenance was also taken into consideration, with some areas proposed for mowing in the future.

For these reasons, the proposed clearing areas were expanded to become solid polygons and to include a 30-foot buffer in adjacent treed areas.

The project proponents also investigated ways to minimize clearing in the more sensitive Runway 15 approach (off the northwest corner of the airport) and have come up with a new alternative for Runway 15-33, which is described below.

The four runway approaches were then discussed in turn, followed by discussion.

Runway 6

At the Runway 6 end, the proposed tree removal has been expanded to include all the trees along both sides of the road. On the airport side, the area is proposed to be mowed annually, consistent with management of the adjacent land. Across the road from the airport, the tree removal area is proposed to be managed the same way the adjacent mitigation area is managed, with less frequent brush cutting or mowing.

Runway 24

At the Runway 24 end, the proposed tree removal was expanded and divided into zones. On airport property, the proposal is to cut trees and mow the areas annually or biannually, consistent with management on the adjacent airfield. Some of this area is within the Runway Object Free Area and must be kept low and some of it is proposed to be mowed for convenience. (See discussion section below.)

Across the paved road and fire road, and within the area around the landing lights (the “approach light plane”), the tree removal areas are also proposed to be mowed, like the rest of the existing area beneath the approach light plane. MJ will provide more information on the dimensions and height limitations of the approach light plane at this airport.

Other tree removal areas within this runway approach are proposed to be cut and converted to a native sandplain habitat type. The type of habitat would be determined in discussions with DCR and Natural Heritage. There are broad areas of scrub oak with no overstory growing naturally in this area, so that may be a viable proposal and might also support rare species.

Most of the cutting would be within the existing easement, but some would be outside the easement. The deed states that the state is responsible for keeping this area clear for aviation traffic. Jed suggested

that it might be mutually beneficial if the airport cut trees within the easement for the state, and the state cut trees that are on the State Forest outside the easement.

Geoff Freeman asked if there is documentation regarding the original condition of the easement areas and the original clearing requirements in the easements. Paul Gregory may have some information, and MJ can look into the easement language.

Runway 15-33

Jed said that FAA, MassDOT and the airport had been looking into ways to reduce or eliminate the tree cutting in the State Forest at the Runway 15 end. This area is sandplain shrub/forest vegetation with no historical records of cutting or burning. Airplane traffic on Runway 15 is relatively light and it may be reasonable to shorten the runway in this direction. A new Runway 15-33 alternative was developed and shown that would displace the threshold of the Runway 15 end by 275 feet without extending the opposite end of the runway. This would result in a shorter runway in this direction but would eliminate the need to remove trees in the State Forest on the Runway 15 end. The proposed run-up pad was also eliminated in this alternative, further reducing tree removal and habitat alternation. There would still be tree removal on the Runway 33 end, where it is proposed to be cut and mowed annually or biannually.

Discussion

There was a question regarding the height limitation for objects within the Runway Object Free Area (ROFA), and whether a range of heights is possible. The purpose of the ROFA is to allow safe travel of aircraft that may veer off the runway. Owen noted that the Runway Safety Area is most critical, and the ROFA pertains to objects that could be a hazard to aircraft. MJ later looked into the FAA height restrictions. Per FAA design guidance, objects within the Runway Object Free Area and the Runway Safety Area may not be higher than three inches unless they are “frangibly mounted” (i.e., able to bend or break off easily) and are required to be there due to function. (The four-inch height limitation mentioned in the meeting was incorrect.)

Nancy asked about tree species and noted that different species grow at different rates and to different heights. Jed responded that all the trees within each runway approach were grouped together in estimating growth rates. Nancy also asked that we show the actual heights of trees. Jed will look into it.

There were comments that the scope seems very different from previous proposals, and that this is more of a habitat conversion rather than selective cutting. The tree removal areas should be characterized as habitat conversion. The proposed habitat restoration would be a mitigation measure.

The impacts and benefits of the tree removal and follow-up management would need to be considered on a species-by-species basis.

There is interest in seeing the natural community data forms to better evaluate the proposed work. It would be helpful if it included tree heights and the proper natural community classifications. Tree heights relative to the runway approach surface elevations would be helpful also.

The acreage of tree removal should be summarized by natural community classification. Jed will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.

There was also a question regarding the timing of tree removal; this has not been considered yet.

There was also a question about what is most sustainable in the long run. A dense, open-canopy scrub oak community occurs naturally in this area and may be compatible with aviation requirements in some areas.

There is still interest in a field meeting this season. The state limits meetings to maximum 10 people. Jed will propose dates, times and personnel based on prior discussions. It was suggested Paul Gregory from DCR and Chris Buelow from Natural Heritage be invited. (Ale later asked to attend and that Eric Seaborn be invited.)

Action Items

- MJ will look into showing the actual heights of trees along with the approach surface elevations.
- MJ will provide more information regarding the approach light plane dimensions on the Runway 24 end.
- Natural community data forms will be provided as soon as they are available.
- MJ will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.
- MJ will look into vegetation management requirements per the easement language.
- MJ will organize a field meeting or meetings.



MEETING NOTES - REVISED

DATE: September 30, 2020 1:00PM **MJ Project No.:** 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Obstruction Removal – Biweekly Call

ATTENDEES:

Nancy Putnam, MA Dept. of Conservation
and Recreation (DCR)

Ale Echandi, DCR (regional ecologist)

Shaun Provenchur, DCR

Amy Hoenig, Natural Heritage and
Endangered Species Program (NHESP)

Tom Mahoney, MassDOT Aeronautics

Owen Silbaugh, MassDOT

Nate Rawding, MassDOT

Richard Doucette, FAA

Geoff Freeman, Martha's Vineyard Airport
(MVY)

Jed Merrow, McFarland Johnson (MJ)

Matt O'Brien, MJ

Jordan Tate, MJ

The call was held to continue discussions regarding proposed tree clearing at Martha's Vineyard Airport and in the surrounding Correllus State Forest.

Action items from the last meeting included:

- *MJ will request an updated rare species list from NHESP. (Request submitted and data received.)*
- *MJ will discuss with GZA the timing of the rare plant review and the natural community review. (Natural community fieldwork completed in August and preliminary mapping distributed to this group.)*
- *MJ will distribute updated Runway 15-33 alternatives, with updated clearing and grassland impact acreages, to the group as soon as the airport, FAA and MassDOT have a chance to review them. (New alternative completed and distributed; overall impacts being tabulated.)*

Jed Merrow provided a recap of past discussions, in particular:

- The critical airspace to keep clear of obstructions is the minimum needed to maintain current aircraft activity and operations; and
- Tree obstructions were identified based on average tree growth rates in each runway approach. Tree heights from 2010 to 2019 were compared, the amount of growth calculated and converted to growth per year. The growth rates were then extrapolated over a 10-year period to determine which trees would exceed the protected airspace. In the past, airports have used the more simplistic approach of adding 10 feet of growth on all trees. The calculated "10 years of

growth” method being used here was chosen to provide results based on site-specific tree growth characteristics rather than a single growth height.

Jed said the airport, FAA and MassDOT had met several times to discuss the tree removal, and the following decisions were made:

- The “mosaic” tree removal areas previously proposed would be hard to implement in practice, as there are many small areas within and between proposed clearing areas that are not proposed to be cleared, and would be difficult to identify in the field.
- It would result in a patchwork of vegetation that would be harder to maintain and might require more tree removal in the not-too-distant future.
- Trees just outside the tree removal areas might have canopies that overlap the removal areas.
- Feasibility and cost of future maintenance was also taken into consideration, with some areas proposed for mowing in the future.

For these reasons, the proposed clearing areas were expanded to become solid polygons and to include a 30-foot buffer in adjacent treed areas.

The project proponents also investigated ways to minimize clearing in the more sensitive Runway 15 approach (off the northwest corner of the airport) and have come up with a new alternative for Runway 15-33, which is described below.

The four runway approaches were then discussed in turn, followed by discussion.

Runway 6

At the Runway 6 end, the proposed tree removal has been expanded to include all the trees along both sides of the road. On the airport side, the area is proposed to be mowed annually, consistent with management of the adjacent land. Across the road from the airport, the tree removal area is proposed to be managed the same way the adjacent mitigation area is managed, with less frequent brush cutting or mowing.

Runway 24

At the Runway 24 end, the proposed tree removal was expanded and divided into zones. On airport property, the proposal is to cut trees and mow the areas annually or biannually, consistent with management on the adjacent airfield. Some of this area is within the Runway Object Free Area and must be kept low and some of it is proposed to be mowed for convenience. (See discussion section below.)

Across the paved road and fire road, and within the area around the landing lights (the “approach light plane”), the tree removal areas are also proposed to be mowed, like the rest of the existing area beneath the approach light plane. MJ will provide more information on the dimensions and height limitations of the approach light plane at this airport.

Other tree removal areas within this runway approach are proposed to be cut and converted to a native sandplain habitat type. The type of habitat would be determined in discussions with DCR and Natural Heritage. There are broad areas of scrub oak with no overstory growing naturally in this area, so that may be a viable proposal and might also support rare species.

Most of the cutting would be within the existing easement, but some would be outside the easement. The deed states that the state is responsible for keeping this area clear for aviation traffic. Jed suggested

that it might be mutually beneficial if the airport cut trees within the easement for the state, and the state cut trees that are on the State Forest outside the easement.

Geoff Freeman asked if there is documentation regarding the original condition of the easement areas and the original clearing requirements in the easements. Paul Gregory may have some information, and MJ can look into the easement language.

Runway 15-33

Jed said that FAA, MassDOT and the airport had been looking into ways to reduce or eliminate the tree cutting in the State Forest at the Runway 15 end. This area is sandplain shrub/forest vegetation with no historical records of cutting or burning. Airplane traffic on Runway 15 is relatively light and it may be reasonable to displace the threshold (i.e., move the takeoff and landing point further from the Runway 15 end). A new Runway 15-33 alternative was developed and shown that would displace the threshold of the Runway 15 end by 275 feet without extending the opposite end of the runway. This would result in a shorter runway in this direction but would eliminate the need to remove trees in the State Forest on the Runway 15 end. Geoff noted that this would reduce the capability of the runway and was not the most desirable outcome from the airport's perspective. (After the meeting, in discussions with FAA, it was made clear that a displaced threshold would be a temporary measure pending a future planning study that would analyze the optimum runway length for this runway. The proposed run-up pad was also eliminated in this alternative, further reducing tree removal and habitat alternation. There would still be tree removal on the Runway 33 end, where it is proposed to be cut and mowed annually or biannually.

Discussion

There was a question regarding the height limitation for objects within the Runway Object Free Area (ROFA), and whether a range of heights is possible. The purpose of the ROFA is to allow safe travel of aircraft that may veer off the runway. Owen noted that the Runway Safety Area is most critical, and the ROFA pertains to objects that could be a hazard to aircraft. MJ later looked into the FAA height restrictions. Per FAA design guidance, objects within the Runway Object Free Area and the Runway Safety Area may not be higher than three inches unless they are "frangibly mounted" (i.e., able to bend or break off easily) and are required to be there due to function. (The four-inch height limitation mentioned in the meeting was incorrect.)

Nancy asked about tree species and noted that different species grow at different rates and to different heights. Jed responded that all the trees within each runway approach were grouped together in estimating growth rates. Nancy also asked that we show the actual heights of trees. Jed will look into it.

There were comments that the scope seems very different from previous proposals, and that this is more of a habitat conversion rather than selective cutting. The tree removal areas should be characterized as habitat conversion. The proposed habitat restoration would be a mitigation measure.

The impacts and benefits of the tree removal and follow-up management would need to be considered on a species-by-species basis.

There is interest in seeing the natural community data forms to better evaluate the proposed work. It would be helpful if it included tree heights and the proper natural community classifications. Tree heights relative to the runway approach surface elevations would be helpful also.

The acreage of tree removal should be summarized by natural community classification. Jed will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.

There was also a question regarding the timing of tree removal; this has not been considered yet.

There was also a question about what is most sustainable in the long run. A dense, open-canopy scrub oak community occurs naturally in this area and may be compatible with aviation requirements in some areas.

There is still interest in a field meeting this season. The state limits meetings to maximum 10 people. Jed will propose dates, times and personnel based on prior discussions. It was suggested Paul Gregory from DCR and Chris Buelow from Natural Heritage be invited. (Ale later asked to attend and that Eric Seaborn be invited.)

Action Items

- MJ will look into showing the actual heights of trees along with the approach surface elevations.
- MJ will provide more information regarding the approach light plane dimensions on the Runway 24 end.
- Natural community data forms will be provided as soon as they are available.
- MJ will have the natural communities put on the tree removal figures and will summarize the acreage of tree removal by community.
- MJ will look into vegetation management requirements per the easement language.
- MJ will organize a field meeting or meetings.



MASSWILDLIFE

DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581

p: (508) 389-6300 | f: (508) 389-7890

MASS.GOV/MASSWILDLIFE

August 17, 2020

Jed Merrow
McFarland Johnson
53 Regional Drive
Concord NH 03301

RE: Project Location: Martha's Vineyard airport, 71 Airport Road
Town: EDGARTOWN & WEST TISBURY
NHESP Tracking No.: 20-39524

To Whom It May Concern:

Thank you for contacting the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for information regarding state-listed rare species in the vicinity of the above referenced site. Based on the information provided, this project site, or a portion thereof, is located **within** *Priority Habitat 945* (PH 945) and *Estimated Habitat 126* (EH 126) as indicated in the *Massachusetts Natural Heritage Atlas* (14th Edition) for the following state-listed rare species:

<u>Scientific name</u>	<u>Common Name</u>	<u>Taxonomic Group</u>	<u>State Status</u>
<i>Anthophora walshii</i>	Walsh's Anthophora	Bee	Endangered
<i>Cicindela purpurea</i>	Purple Tiger Beetle	Beetle	Special Concern
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	Bird	Threatened
<i>Antristomus vociferus</i>	Eastern Whip-poor-will	Bird	Special Concern
<i>Circus hudsonius</i>	Northern Harrier	Bird	Threatened
<i>Abagrotis benjamini</i>	Coastal Heathland Cutworm	Butterflies and Moths	Special Concern
<i>Acronicta albarufa</i>	Barrens Dagger Moth	Butterflies and Moths	Threatened
<i>Catocala herodias</i>	Herodias Underwing Moth	Butterflies and Moths	Special Concern
<i>Chaetagnela cerata</i>	Waxed Sallow Moth	Butterflies and Moths	Special Concern
<i>Cicinnus melsheimeri</i>	Melsheimer's Sack Bearer	Butterflies and Moths	Threatened
<i>Cingilia catenaria</i>	Chain Dot Geometer	Butterflies and Moths	Special Concern
<i>Cycnia collaris</i>	Collared Cycnia	Butterflies and Moths	Threatened
<i>Eacles imperialis</i>	Imperial Moth	Butterflies and Moths	Threatened
<i>Euchlaena madusaria</i>	Scrub Euchlaena	Butterflies and Moths	Special Concern
<i>Hemaris gracilis</i>	Slender Clearwing Sphinx	Butterflies and Moths	Special Concern
<i>Hemileuca maia</i>	Buck Moth	Butterflies and Moths	Special Concern
<i>Heterocampa varia</i>	Sandplain Heterocampa	Butterflies and Moths	Threatened
<i>Lycia ypsilon</i>	Woolly Gray	Butterflies and Moths	Threatened
<i>Metarranthia apicaria</i>	Barrens Metarranthia Moth	Butterflies and Moths	Endangered
<i>Metarranthia pilosaria</i>	Heath Metarranthia	Butterflies and Moths	Special Concern
<i>Psectraglaea carnosa</i>	Pink Sallow	Butterflies and Moths	Special Concern
<i>Ptichodis bistrigata</i>	Southern Ptichodis	Butterflies and Moths	Threatened

MASSWILDLIFE

<u>Scientific name</u>	<u>Common Name</u>	<u>Taxonomic Group</u>	<u>State Status</u>
<i>Speranza exonerata</i>	Pine Barrens Speranza	Butterflies and Moths	Special Concern
<i>Stenoporpia polygrammaria</i>	Faded Gray Geometer	Butterflies and Moths	Threatened
<i>Zale lunifera</i>	Pine Barrens Zale	Butterflies and Moths	Special Concern
<i>Aristida purpurascens</i>	Purple Needlegrass	Plant	Threatened
<i>Nabalus serpentarius</i>	Lion's Foot	Plant	Endangered
<i>Scleria pauciflora</i>	Papillose Nut-Sedge	Plant	Endangered
<i>Sisyrinchium fuscatum</i>	Sandplain Blue-Eyed Grass	Plant	Special Concern
<i>Spiranthes vernalis</i>	Grass-Leaved Ladies'-Tresses	Plant	Threatened

The species listed above are protected under the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (WPA) (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.00). Fact sheets for most state-listed rare species can be found on our website (www.mass.gov/nhesp).

Please note that projects and activities located within Priority and/or Estimated Habitat **must** be reviewed by the Division for compliance with the state-listed rare species protection provisions of MESA (321 CMR 10.00) and/or the WPA (310 CMR 10.00).

Wetlands Protection Act (WPA)

If the project site is within Estimated Habitat and a Notice of Intent (NOI) is required, then a copy of the NOI must be submitted to the Division so that it is received at the same time as the local conservation commission. If the Division determines that the proposed project will adversely affect the actual Resource Area habitat of state-protected wildlife, then the proposed project may not be permitted (310 CMR 10.37, 10.58(4)(b) & 10.59). In such a case, the project proponent may request a consultation with the Division to discuss potential project design modifications that would avoid adverse effects to rare wildlife habitat.

A streamlined joint MESA/WPA review process is available. When filing a Notice of Intent (NOI), the applicant may file concurrently under the MESA on the same NOI form and qualify for a 30-day streamlined joint review. For a copy of the NOI form, please visit the MA Department of Environmental Protection's website: <https://www.mass.gov/how-to/wpa-form-3-wetlands-notice-of-intent>.

MA Endangered Species Act (MESA)

If the proposed project is located within Priority Habitat and is not exempt from review (see 321 CMR 10.14), then project plans, a fee, and other required materials must be sent to Natural Heritage Regulatory Review to determine whether a probable Take under the MA Endangered Species Act would occur (321 CMR 10.18). Please note that all proposed and anticipated development must be disclosed, as MESA does not allow project segmentation (321 CMR 10.16). For a MESA filing checklist and additional information please see our website: <https://www.mass.gov/regulatory-review>.

We recommend that rare species habitat concerns be addressed during the project design phase prior to submission of a formal MESA filing, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review.

This evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. If the purpose of your

inquiry is to generate a species list to fulfill the federal Endangered Species Act (16 U.S.C. 1531 et seq.) information requirements for a permit, proposal, or authorization of any kind from a federal agency, we recommend that you contact the National Marine Fisheries Service at (978)281-9328 and use the U.S. Fish and Wildlife Service's Information for Planning and Conservation website (<https://ecos.fws.gov/ipac>). If you have any questions regarding this letter please contact Melany Cheeseman, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

A handwritten signature in black ink, reading "Everose Schlüter". The signature is written in a cursive, flowing style.

Everose Schlüter, Ph.D.
Assistant Director



MEETING NOTES

DATE: October 22, 2020 10AM

MJ Project No.: 18226.07

LOCATION: Conference call

PROJECT: Martha's Vineyard Airport Tree Removal

ATTENDEES:

Amy Hoenig, Natural Heritage and
Endangered Species Program (NHESP)
Richard Doucette, FAA
Nate Rawding, MassDOT
Michael Garrity, MassDOT

Geoff Freeman, Martha's Vineyard Airport
(MVY)
Jed Merrow, McFarland Johnson (MJ)
Rich Lasdin, MJ

This meeting was held to present to Amy the materials from the 10/14/20 biweekly meeting with DCR staff, to answer questions she may have, and discuss permitting options.

Jed showed the 3D visualization of the airport surfaces and tree obstructions. Amy asked what airport surfaces need to be clear of obstructions, and there was discussion of the various surfaces. She would like clear definitions of the various surfaces involved and the reasons they need to be kept clear.

The latest Runway 15-33 alternative with a displaced threshold on the 15 end and no extension on the 33 end was shown. It was noted that this would eliminate the need to remove trees off airport property in the State Forest, to the northwest. It would also reduce the functionality of the runway, but it might be reasonable because of the runway is relatively lightly used. It would have to be considered an interim measure until a full planning study is done of the optimum length of the runway and the pros and cons of different lengths. This would likely be studied during the next master plan update, several years hence.

From a rare species perspective, Amy says the biggest concern is habitat conversion. Conversion can benefit certain species; for example, converting forest to shrub habitat can benefit rare moths, and converting to grass can benefit rare plants. Nevertheless, wholesale habitat conversion, especially of naturally vegetated forest or shrub to grass, is not desirable.

The permitting process was discussed. There was a question whether the off-airport tree removal could be separately permitted, for example if DCR were the permittee for land they are responsible for clearing. The MESA segmentation provision would consider all of the tree removal to be related and have a common purpose, and therefore likely one project with one

approval. The approval could potentially be phased. Amy expects MEPA would see it the same way.

NHESP does review other agencies' projects, including its own.

NHESP would like to have the current MESA Conservation and Management Permit closed out and to permit the new CIP projects under a new permit. Nevertheless, projects needing a quicker approval could be permitted through an amendment to the existing permit.

Tree removal is probably the first FAA project, but the airport would like to advance two other projects – the business park lots and a hangar – as soon as possible. Amy thinks NHESP might consider advancing these with an amendment and addressing the other CIP projects later with a new permit. Regardless, the MEPA process would be concluded first, followed by permitting.

Jed noted that the tree removal might end up with a few different kinds of vegetation management areas:

- Areas where all tree and shrub vegetation is removed and the area becomes frequently mowed grassland.
- Areas where all trees are removed and the area is brush-cut regularly to allow shrub vegetation that supports rare species but that can be easily maintained.
- Areas where all trees are cut and it is managed for a native habitat such as scrub oak.

Amy thought that approach could be considered, depending on factors such as acreage, habitat sensitivity, and their analysis of rare species impacts.

There was discussion of what vegetation is allowed within the Runway Object Free Area. Richard Doucette will follow up and report back to the group.

Nate Rawding noted that FAA only pays for the initial cutting, then airports are responsible for managing the vegetation, so long-term management needs to be feasible in terms of cost, equipment, and capabilities.

The next step will be the field meeting on November 12.

Action Items

- MJ will provide graphics and definitions of the various runway approach surfaces.
- FAA will investigate the ROFA and RSA height requirements.



MEETING NOTES

DATE: November 2, 2020 10:00AM **MJ Project No.:** 18226.07

LOCATION: Skype and conference call

PROJECT: Martha's Vineyard Airport CIP Projects EA/EIR

ATTENDEES:

Nate Rawding, MassDOT Aeronautics
Jed Merrow, McFarland Johnson (MJ)
Geoff Freeman, Martha's Vineyard Airport

Rich Lasdin, MJ
Matthew O'Brien, MJ
Richard Doucette, FAA

Alex – Is the obstruction project review due in May 2021 as well? – Yes

FAA – Next steps → Grant Application to issue for permitting.

- Can't change the \$\$ due to natural heritage permitting needs. Therefore need to know how much effort to complete the NHESP.

Alex – MEPA does not need 100% from NHESP to finish, in fact NHESP will not provide final determination in a MEPA review.

****Submit the DRAFT EA/EIR and also label it as a Notice of Project Change. Samantics really.**

- Obstructions seem simple, have already completed good alternatives
- Seems that there is enough information
 - Thorough alts analysis.
 - Make sure the envelop is the largest option proposed. Creates challenges if you have to expand after MEPA review.
 - List the potential mitigation measures
 - NHESP does not commit during MEPA.
 - Demonstrate that it can be permitted

GHG Analysis

- Incorporate lost carbon due to trees
- Sequestration
- Soil disturbance

Dates for Environmental Monitor

- File by November 30th for December 9th publication
- File by December 13? (Maybe 15th? Didn't hear) for December 23rd
- File by December 31 for January 6th
- 30 Comment Period + 7 days

Alex – Who have you spoken with at DCR?

- Everyone, Jed provided a list, along with FAA's efforts, and Airport's Efforts

PLANNING, ENGINEERING AND CONSTRUCTION ADMINISTRATION CONSULTANTS



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>

In Reply Refer To:
Consultation Code: 05E1NE00-2021-SLI-0426
Event Code: 05E1NE00-2021-E-01280
Project Name: MVY Capital Improvement Projects

November 12, 2020

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-0426

Event Code: 05E1NE00-2021-E-01280

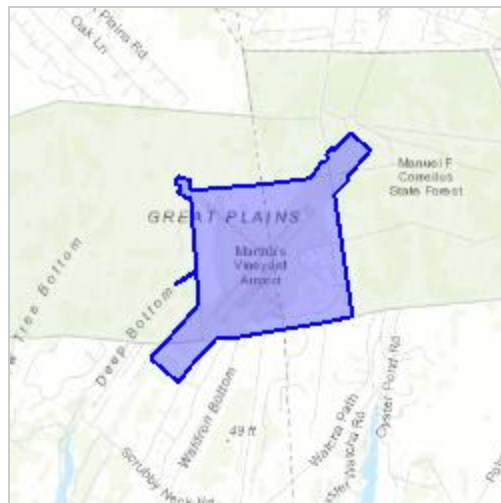
Project Name: MVY Capital Improvement Projects

Project Type: TRANSPORTATION

Project Description: The proposed project consists of multiple capital improvement projects and obstruction removal at Martha's Vineyard Airport. The majority of the projects are located on airport property, with a portion of the obstruction removal located off-airport. The proposed projects would result in approximately 48 acres of temporary and permanent impacts

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.39250977192375N70.61150964498265W>



Counties: Dukes, MA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>

In Reply Refer To:
Consultation Code: 05E1NE00-2021-TA-0426
Event Code: 05E1NE00-2021-E-01298
Project Name: MVY Capital Improvement Projects

November 13, 2020

Subject: Verification letter for the 'MVY Capital Improvement Projects' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Jordan Tate:

The U.S. Fish and Wildlife Service (Service) received on November 13, 2020 your effects determination for the 'MVY Capital Improvement Projects' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"^[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

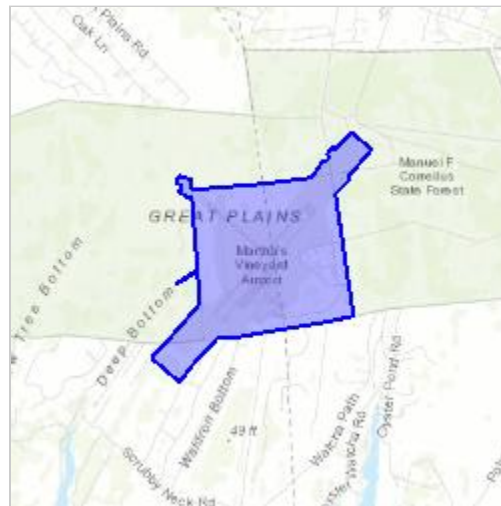
MVY Capital Improvement Projects

2. Description

The following description was provided for the project 'MVY Capital Improvement Projects':

The proposed project consists of multiple capital improvement projects and obstruction removal at Martha's Vineyard Airport. The majority of the projects are located on airport property, with a portion of the obstruction removal located off-airport. The proposed projects would result in approximately 48 acres of temporary and permanent impacts, of which tree removal will account for approximately 31.90 acres.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.39250977192375N70.61150964498265W>

**Determination Key Result**

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")
No
3. Will your activity purposefully **Take** northern long-eared bats?
No
4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?
Automatically answered
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

7. Will the action involve Tree Removal?

Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

31.9

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

Martha's Vineyard Airport
Capital Improvement Plan
Final Environmental Impact Report / Environmental Assessment

APPENDIX H

Groundwater Elevation Data

MARTHA'S VINEYARD AIRPORT
ENVIRONMENTAL ASSESSMENT

FINAL ENVIRONMENTAL
IMPACT REPORT
EOEA 6503

GROUNDWATER
MANAGEMENT PLAN
SUBMITTED JANUARY 1989

PREPARED FOR
THE MARTHA'S VINEYARD
AIRPORT COMMISSION

VOLUME II

APRIL • 1990



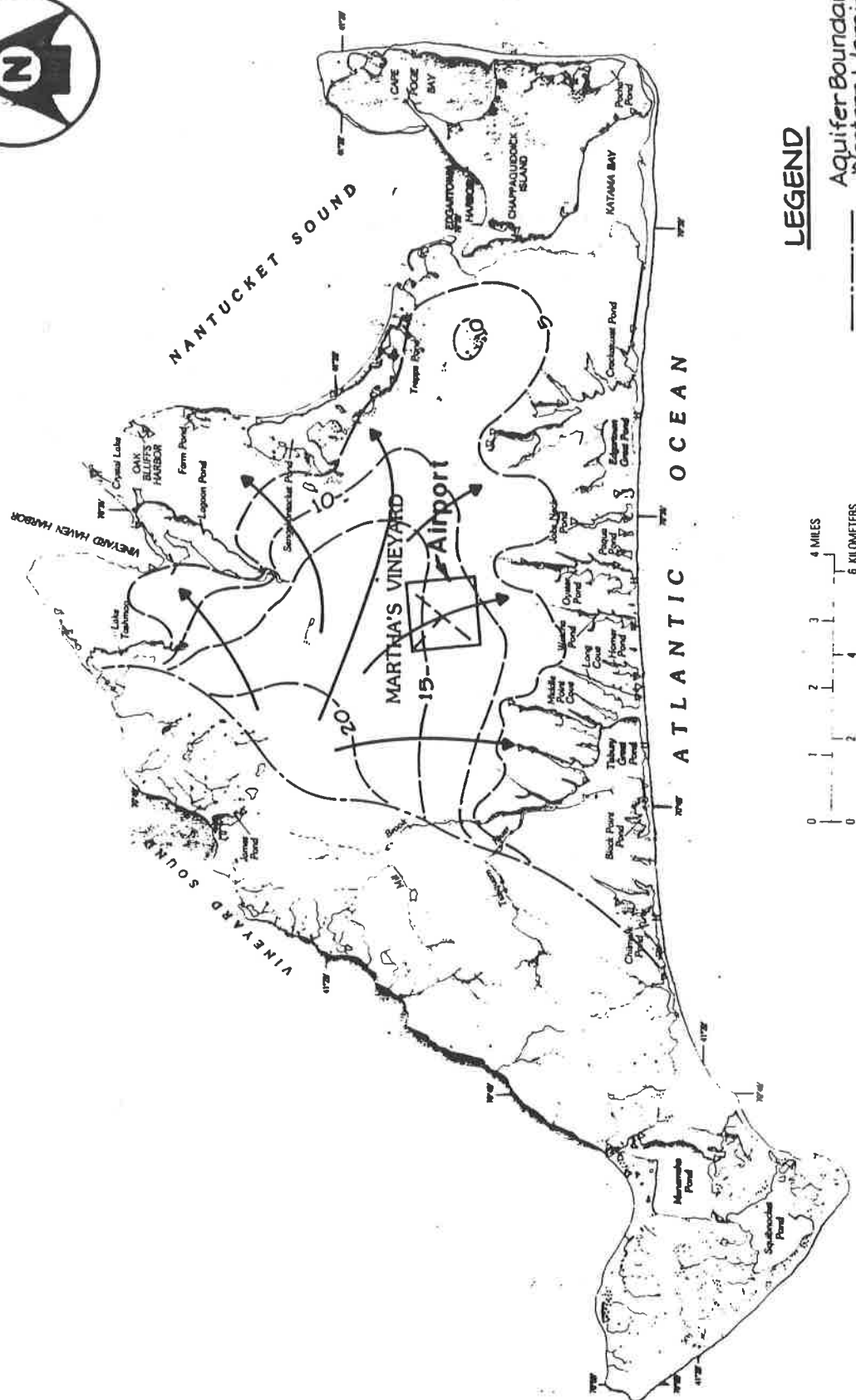


FIGURE 6

Client No.	817051
Proj. Mgr.	DFE
Date	JAN 88

**GENERALIZED
GROUNDWATER FLOW**
MARTHA'S VINEYARD AIRPORT COMMISSION



Dufresne-Henry
Inc.

A

Source: DELANEY, 1980

The groundwater levels measured through the three rounds showed a consistent drop in elevation. Groundwater elevations measured on June 15, 1988 (Round 1) were the highest of the three rounds, with the groundwater table ranging from 30 feet to 50 feet below the ground surface. Round 2, measured on July 28, 1988, showed groundwater elevations dropping approximately 0.3 feet in every location. The final measurements obtained on September 22, 1988, resulted in the water table dropping another 0.8 feet.

The lowering of the aquifer can be attributed to the weather experienced in the summer of 1988. The months of July and August had unprecedented high temperatures with little or no precipitation. Therefore, the underlying aquifer on Martha's Vineyard received very little recharge, which caused the gradual lowering of the water table.

The prevailing groundwater flow gradient at the Airport is in a southerly to southeasterly direction. Groundwater at the upgradient Well M1 is flowing at approximately elevation 20 (MSL) or approximately 50 feet below the surface. At the downgradient property boundary near the location of Wells M3 and M3D, the elevation of groundwater drops to 14.50 feet (MSL) or approximately 35 feet below the surface.

MARTHA'S VINEYARD AIRPORT COMMISSION
GROUNDWATER MANAGEMENT PLAN

TABLE 2
GROUNDWATER LEVEL DATA

	TOP OF CASING ELEV. (FT)	ROUND 1 (6/15/88)	ROUND 2 (7/28/88)	ROUND 3 (9/22/88)
A	48.03	15.12	14.80	14.00
B	46.70	15.08	14.78	13.58
C	52.90	15.26	15.01	14.19
D	44.37	15.13	14.80	14.03
E	54.66	15.62	15.28	14.53
F	51.68	14.72	14.47	13.76
8" (H)	68.91	18.85	18.31	17.61
L-3	68.73	18.62	18.13	17.43
M1	70.11	20.04	19.54	18.81
M2	63.04	17.95	17.49	16.76
M3	50.91	14.51	14.23	13.47
M3D	51.10	-	-	13.46
M4	48.53	15.06	14.80	14.04
M4D	48.32	15.01	14.73	13.94
M5	54.43	15.35	15.07	14.39
M6	51.77	14.61	14.32	13.65
M6D	51.91	14.61	14.35	13.64
M7	57.18	16.44	16.09	15.28
M8	49.76	15.32	15.02	14.28

NOTE: M3D was installed after the first two sampling rounds.


F. G. SULLIVAN DRILLING CO., INC.
Lancaster, Mass. 01523

Name of Driller CARL BEIRHOLM Names of Helpers SHAWN FARRAU
Job: Name & Location MARTHA'S VINEYARD AIRPORT WEST TISBURY, MASS.

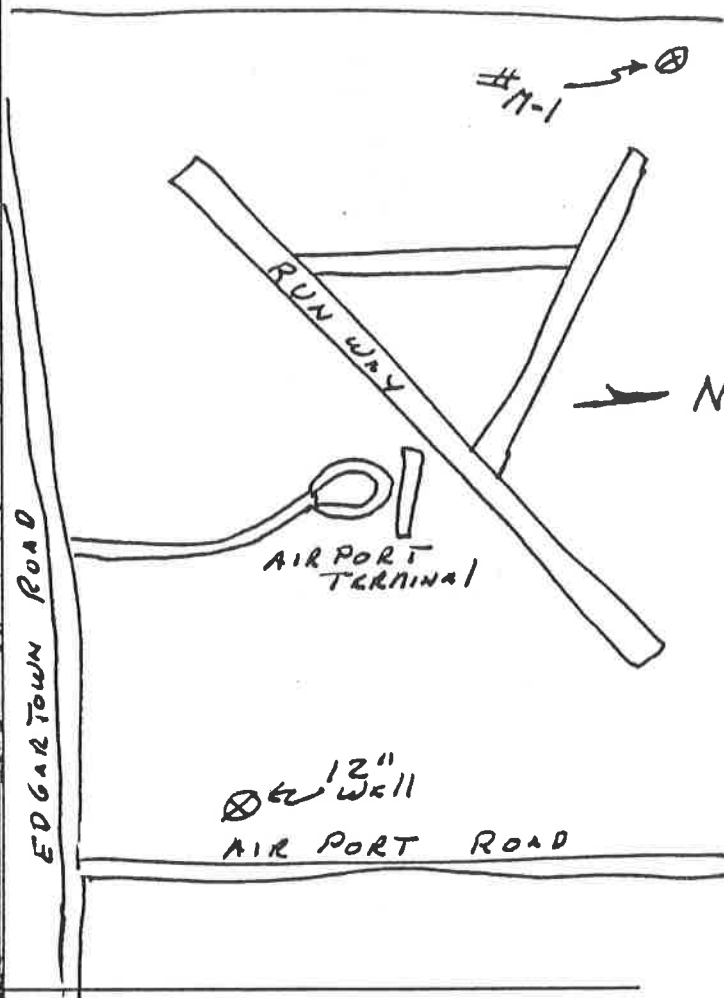
Date Started 4-29-88 Date Finished 5-2-88

Hole No. 1-214. Monitor Well

Depth	Classification of
-------	-------------------

From	To	Material	Feet of Screen Exposed
0'	5'	BR/MED SAND	10' OF 2" PVC
5'	10'	BR/FINE GRAVEL	
10'	15'	BR/COURSE SAND	Size of Screen & Slot
15'	25'	BR/COURSE SAND	2 IN. 10 SLOT
		SOME GRAVEL	
25'	35'	BR/COURSE SAND	Screen Type
		+ MED GRAVEL	FLUSH TUBE PVC
35'	45'	BR/MED SAND	Pipe Left In
45'	50'	BR/FINE TO MED SAND	52' OF 2" PVC
50'	60'	BR/COURSE SAND	Pipe Above Ground
			2.0 FT.
			Static From Top of Pipe
			49.90 FT
			G.P.M.
			
			Samples Taken

SITE PLAN



Pump Test on Hole No.

REMARKS

[illegible]

SET 10 FT OF 10 SLOT PVC
FLUSH TUBE SCREEN AND
52.0 FT. OF 2 IN. PIPE
PULLED OUT ALL 3 IN. PIPE
SET BENTONITE SEAL FROM
49 FT TO 42 FT
SET 5 FT OF 2 1/2 IN. PROTECTOR
PIPE WITH LOCKING CAP AND
LOCK — CEMENTED IN
PLACE

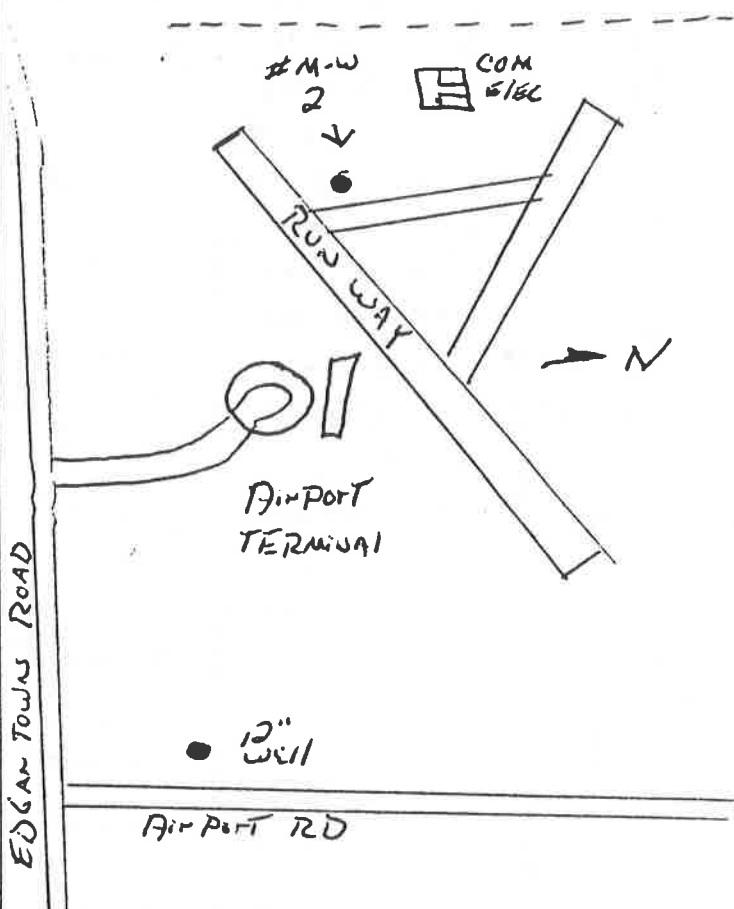
Name of Driller CARL BEIRHOLM Names of Helpers SHAWN FAUTEAU

Date Started 5-17-88 Date Finished 5-18-88

Hole No. II 2 2" MONITORING WELL

Depth	Classification of
-------	-------------------

SITE PLAN



REMARKS

SET 15 FT OF 1 1/2" PVC FLUSH
TUBE SCREEN AND 47 FT OF 2"
PIPE.

PULLED OUT ALL 3" PIPE

SET BENTONITE SEAL FROM
45 FT TO 41 FT

SET 5 FT OF 2 1/2" PROTECTION PIPE
WITH LOCKING CAP AND LOCK - CEMENTED
IN PLACE

F. G. SULLIVAN DRILLING CO., INC.
Lancaster, Mass. 01523

Name of Driller CARL BEIRHOLM

Names of Helpers SHAWN FAUPEAU

Job: Name & Location MANTHA'S UINE YARD ALPANT

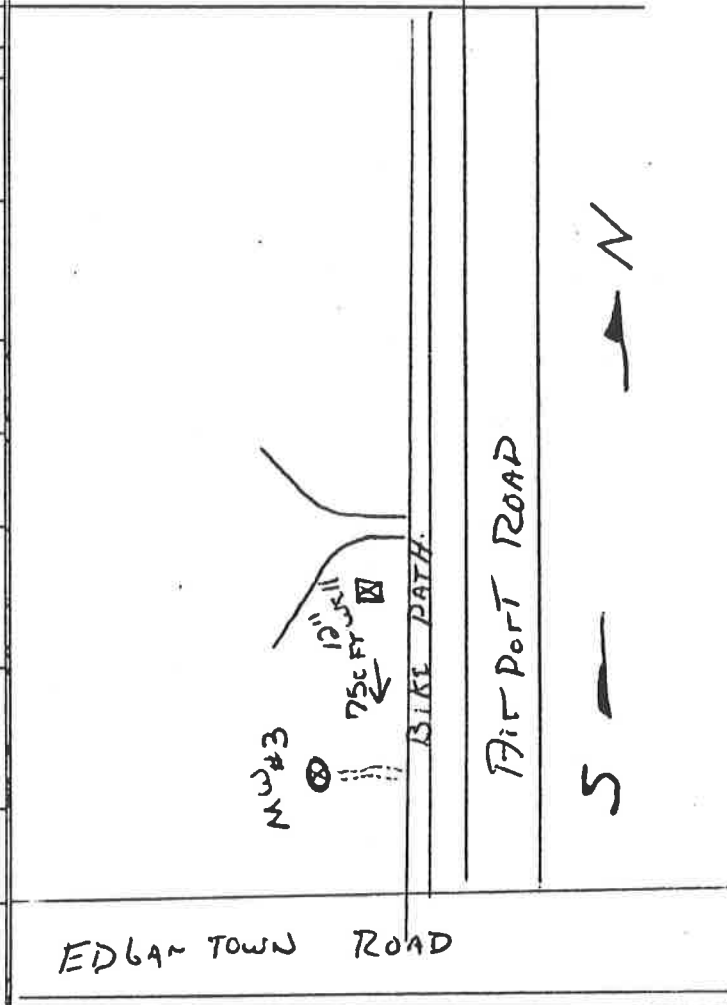
OFF FROM ALPANT RD. NEAR 12" WELL

Date Started 5-16-88 Date Finished 5-17-88

Hole No. #3 2" MONITORING WELL

SITE PLAN

Depth		Classification of	
From	To	Material	Feet of Screen Exposed
0	5	SAND + COURSE GRAVEL BROKEN ROCK	15 FT OF 2" PUC
5	10	BT SAND + COURSE GRAVEL BROKEN ROCK	
10	15	BT FINE + MED SAND + COURSE GRAVEL	
15	20	BT FINE + MED SAND + COURSE GRAVEL	2" 10 SLOT
20	25	BT FINE + MED SAND + COURSE GRAVEL	
25	30	BT FINE + MED SAND + COURSE GRAVEL	
30	35	BT FINE + MED SAND + COURSE GRAVEL	Screen Type FLUSH TUBE PUC
35	40	BT FINE + MED SAND + COURSE GRAVEL	Pipe Left In
40	45	MED + COURSE GRAVEL	42' OF 2" PUC
45	50	MED + COURSE GRAVEL	Pipe Above Ground
50	55	MED + COURSE GRAVEL	2.0 FT
			Static From Top of Pipe
			35.10
			G.P.M.
			—
			Samples Taken
			—



Pump Test on Hole No.

Date	Time	Dr. Down	G.P.M.	Static and Other Info.

REMARKS

SET 15 FT OF 10 SLOT PUC FLUSH
TUBE AND 42 FT OF 2" PIPE

— — — — —

PULLED OUT ALL 3" PIPE

— — — — —

SET BENTONITE SEAL FROM 35 FT TO
30 FT

— — — — —

SET 5 FT OF 2 1/2" PROTECTOR PIPE
WITH LOCKING CAP AND LOCK - CEMENTED
IN PLACE.

F. G. SULLIVAN DRILLING CO., INC.
Lancaster, Mass. 01523

Name of Driller CARL BEIRAKIM

Names of Helpers SHAWN FAUREAU

Job: Name & Location MARTHA'S VINEYARD Dir PORT OFF EDGEMOUNT ROAD 1350 FT WEST OF

ACCESS
READ

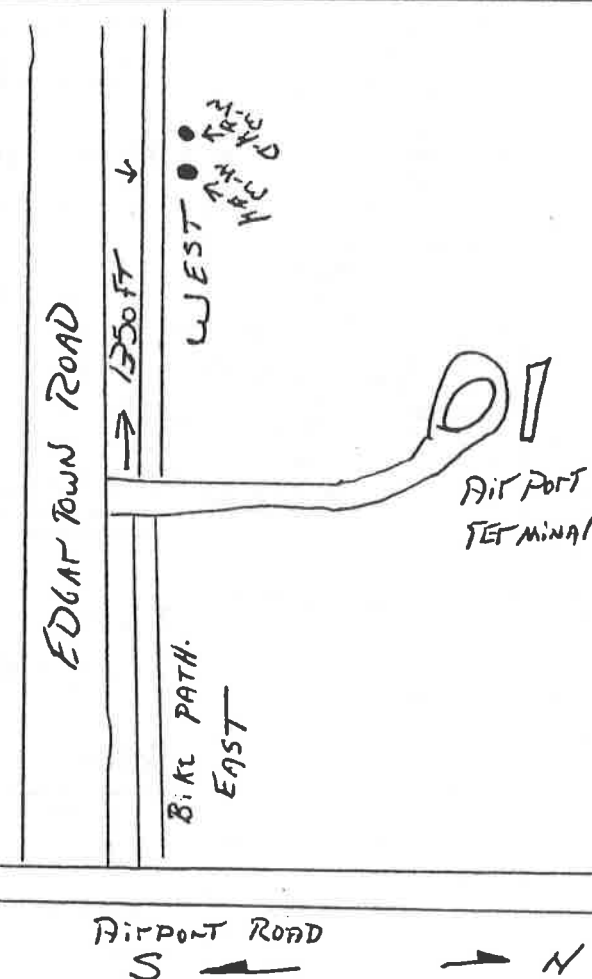
Date Started 5-1-88 Date Finished 5-13-88

SITE PLAN

Hole No. **#4** 3" MONITORING WELL

Depth	Classification of
-------	-------------------

From	To	Material	Feet of Screen Exposed
0	5	COURSE SAND + GRAVEL BROKEN ROCK	15 FT OF 2" PUC
5	10	COURSE GRAVEL + SAND BROKEN ROCK	
10	15	COURSE GRAVEL + SAND	Size of Screen & Slot
15	20	FINE + MED SAND + GRAVEL	2 IN 10 S/OT
20	25	FINE + MED SAND + GRAVEL	
25	30	COURSE GRAVEL	Screen Type
30	35	COURSE GRAVEL	FLUSH TUBE PUC
35	40	MED GRAVEL	Pipe Left In
40	45	MED GRAVEL	37' OF 2" PUC
45	50	MED GRAVEL	Pipe Above Ground
50 55			2.0 FT
			Static From Top of Pipe
			34.92
			G.P.M.
			—
			Samples Taken
			—



Pump Test on Hole No.

REMARKS

[illegible]

SET BFT OF A 5/8" PUC FLUSH
TUBE AND 37 FT OF 2" PIPE

PULLED OUT ALL 3" PIPE

SET BENTONITE SEAL FROM
34' TO 30 FT

SET 5 FT OF 2 1/2" PROTECTOR PIPE WITH
LOCKING CAP AND LOCK. - CEMENTED
IN PLACE

F. G. SULLIVAN DRILLING CO., INC.
Lancaster, Mass. 01523

Name of Driller CARL BEITHOIM

Names of Helpers SHAWN FAUREAU

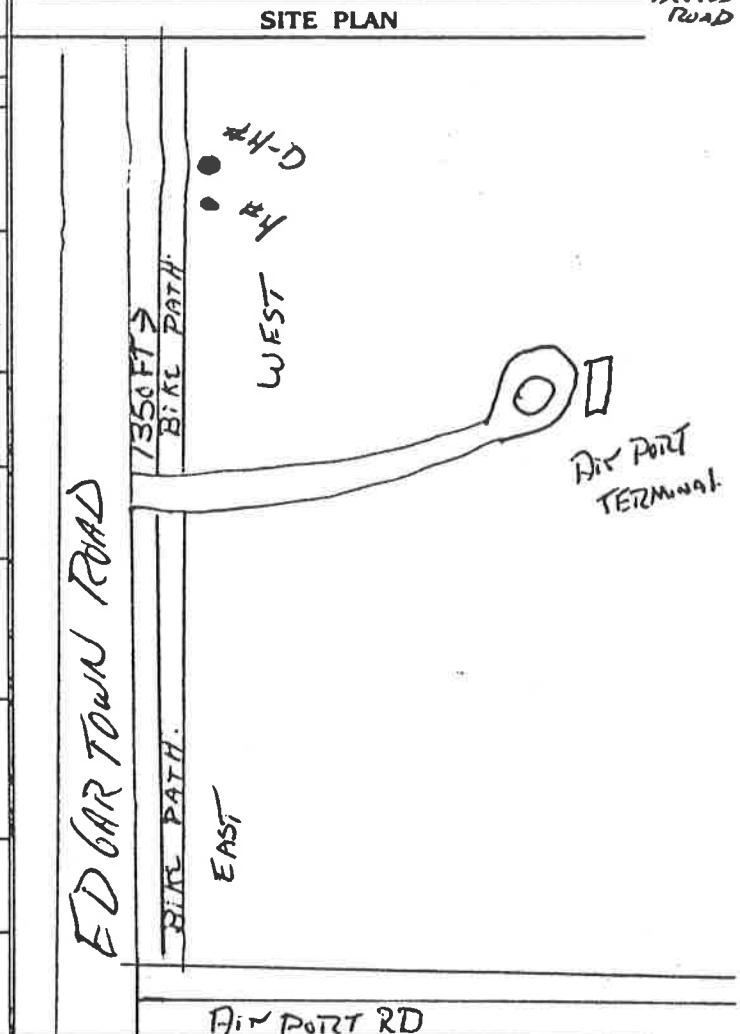
Job: Name & Location MARTHA'S VINEYARD REPORT OFF EDGEMOUNT RD 1350 FT WEST OF AIRPORT

Date Started 5-9-88 Date Finished 5-11-88

SITE PLAN

Hole No. **# 4-D** 2" MONITORING WELL

Depth		Classification of	
From	To	Material	Feet of Screen Exposed
0	5	COURSE GRAVEL + SAND BRCKEN ROCK	15' of 2" PVC
5	10	COURSE GRAVEL + SAND BRCKEN ROCK	
10	15	COURSE GRAVEL SAND	Size of Screen & Slot
15	20	FINE + MED SAND + GRAVEL	2 IN 10 SAT
20	25	FINE + MED SAND + GRAVEL	
25	30	COURSE GRAVEL	Screen Type
30	35	COURSE GRAVEL	FINISH TUBE PVC
35	40	MED GRAVEL	Pipe Left In
40	45	MED GRAVEL	62' of 2" PVC
45	50	MED GRAVEL	Pipe Above Ground
50	55	FINE + MED SAND GRAVEL	2.0 FT
55	60	FINE + MED SAND GRAVEL	
60	65	COURSE SAND	Static From Top of Pipe
65	70	COURSE SAND	34.92
70	75	COURSE SAND	
			G.P.M.
			—
			Samples Taken
			—



Pump Test on Hole No.

[illegible]

REMARKS

SET 15 FT OF 10 5/8" PVC FLUSH
TUBE SCREEN AND 62 FT OF 2" PIPE

PULLED OUT ALL 3" PIPE

SET BENTONITE SEAL FROM
34 FT TO 30 FT

SET 5 FT OF 2 1/2" PROTECTOR PIPE
WITH LOCKING CAP AND LOCK - CEMENT
IN PLACE.

SET 5 FT OF 2 1/2" PROTECTOR PIPE
WITH LOCKING CAP AND LOCK. - CEMENTED
IN PLACE.

SET 15 FT OF 10 SLOT FISH TUBE
SCREW AND 32 FT OF 2" PVC

PULLED OUT ALL 3" PIPE

SET BENTONITE SEAL FROM 32 FT
TO 28 FT

SET 5 FT OF 2 1/2" PROTECTOR PIPE
WITH LOCKING CAP AND LOCK -
CEMENTED INTO PLACE.

Name of Driller CARL BEIDNOLM Names of Helpers SHAWN FAUREAU

Job: Name & Location MARTHA'S VINE LAND RIF PORT WEST TISBURY MA.

Date Started 5-3-88 Date Finished 5-4-88

Hole No. #6-D 3' MONITORING WELL

Depth	Classification of
-------	-------------------

Hand-drawn site plan of the Airport Road intersection. The plan shows Edgemoor Town Rd running vertically on the left, intersecting with Airport Rd running horizontally at the bottom. A branch of Airport Rd extends east from the intersection, featuring a roundabout. A north arrow is located at the bottom center, pointing towards the top of the page. Two monitoring wells are marked with black dots: MW 6-D is located north of the intersection, and MW #6 is located south of the intersection. A distance of 1800 FT is indicated along Airport Rd south of the intersection. The number '3' is written in the upper left quadrant. The text 'AIRPORT TERMINAL' is written near the roundabout. A north arrow is also present at the bottom right, pointing towards the top right.

REMARKS

SET 15 FT OF 10 S/OT FLUSH TUBE
SCREEN AND 62 FT OF 2" PIPE.

PULLED OUT ALL 3" PIPE.

SET BEN TONITE SEAL - FROM 32 FT TO
26 FT

SET 5 FT OF 2 1/2" PROTECTOR PIPE
WITH LOCKING CAP AND LOCK -
CEMENTED INTO PLACE.

Lancaster, Mass. 01523

Name of Driller CARL BEIRHOLM

Names of Helpers C Huck Schmidt

Job: Name & Location MARTHA'S Vineyard Disport

BEHIND THE JUNK YARD

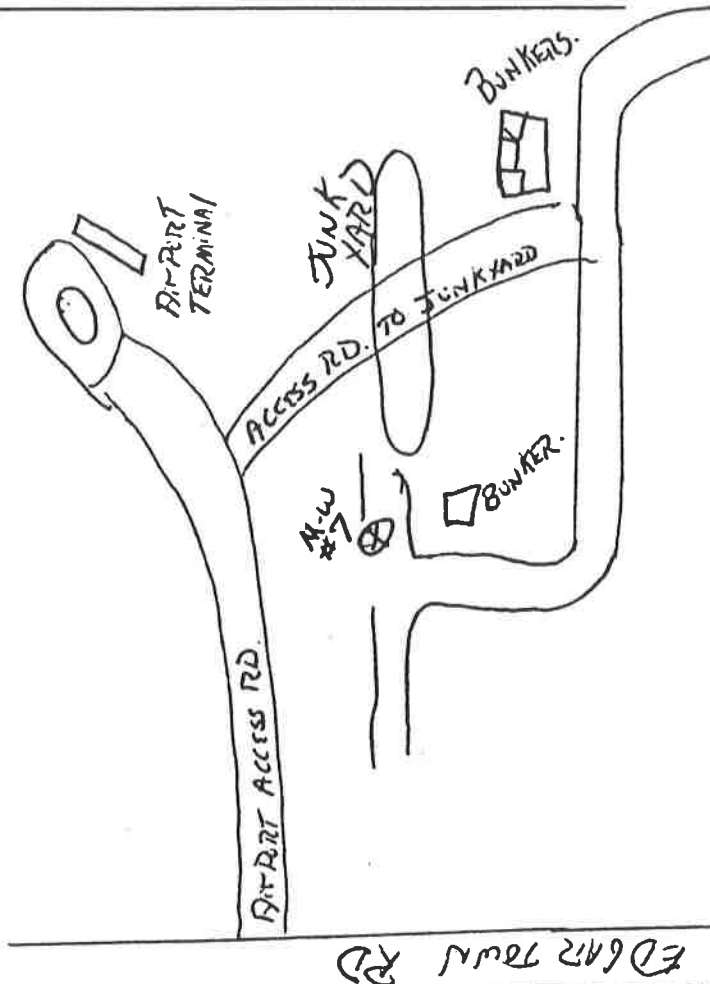
Date Started 4-21-88 Date Finished 4-22-88

SITE PLAN

Hole No. # 7. 2" MONITORING WELL

Depth	Classification of
-------	-------------------

From	To	Material	Feet of Screen Exposed
0	5	FINE + MED SAND COARSE GRAUS	15 FT OF 2" PUC
5	10	FINE + MED SAND GRAUS	
10	15	FINE + MED SAND + GRAUS	
15	20	BT FINE + MED SAND	Size of Screen & Slot
20	25	BT FINE + MED SAND GRAUS	2 IN 10 S/OT
25	30	BT FINE + MED SAND GRAUS	
30	35	MED SAND + GRAUS	
35	40	FINE + MED SAND GRAUS	Screen Type
40	45	MED GRAUS	FLUSH TUBE PUC
45	50	MED GRAUS	Pipe Left In
50	55	MED GRAUS	42 FT OF 2" PUC
			Pipe Above Ground
			2.0 FT
			Static From Top of Pipe
			39.60
			G.P.M.
			Samples Taken



Pump Test on Hole No.

[illegible]

REMARKS

SET 15 FT OF 10 S/OT FLUSH TUBE
SCREEN AND 42' OF 2" PIPE

PULLED OUT ALL 3" PIPE

SET BENTONITE SEAL FROM
39 FT TO 35 FT

SET 5 FT OF 2 1/2" PROTECTOR PIPE
WITH LOCKING CAP AND JOINT. —
CEMENTED INTO PLACE.

Name of Driller CARL BEERHOLM Names of Helpers CHUCK SCHMIDT

Date Started 4-26-88 Date Finished 4-27-88

Hole No. ~~8~~ 8 2" MONITORING WELL

REMARKS

SET 15 FT OF 10 SPT FLUSH TUBE
SCREEN AND 67 FT OF 2" PIPE

PULLED OUT ALL 3" PIPE

SET BENTONITE SEAL FROM 28 FT
TO 32 FT

SET 5 FT OF 2 1/2" PROTECTIVE PIPE
WITH LOCKING CAP AND LOCK. —
CEMENTED INTO PLACE.



January 12, 1989

Dufresne-Henry
Attn: Tom Mahanna
239 Littleton Avenue
Westford, Mass. 01886

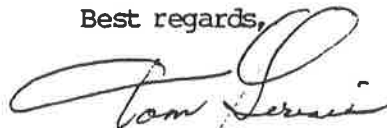
Subject: Martha's Vineyard Airport Well
Drilled for Frank Sullivan

Tom:

Below are specifications of subject well we constructed.

Date Drilled: 9-22-88
Method: Augered with 9-5/8"OD/6-1/4ID Augers
Depth: 75 ft.
Static Water: 33 ft.
Well Diameter 2"
Screen: 25 ft. of .010 slot
Back Fill: Natural Cuttings to 6 ft. from Ground Level
Bentonite Seal: 2 ft. to 6 ft. from Ground
Cement Seal: 2 ft. to Ground
Protective Casing Installed

Best regards,



Tom Gervais

4-12087

SCANNED

RIZZO ASSOCIATES, INC.

ENGINEERS AND ENVIRONMENTAL SCIENTISTS

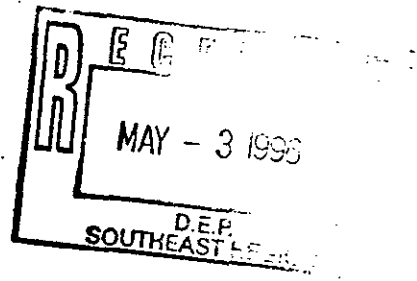
Phase I — Initial Site Investigation and Tier Classification

**Martha's Vineyard Airport, PCE Investigation
West Tisbury, Massachusetts
RTN 4-12087**

**Submitted to:
Massachusetts Department of Environmental
Protection**

**Prepared by:
Rizzo Associates, Inc.**

April 11, 1997



**PHASE I LIMITED SITE INVESTIGATION
REPORT**

TAKEMMY LAUNDRY GASOLINE RELEASE

#4-11325

Prepared for:

Dukes County Airport Commissioners

Prepared by:

Craig E. Saunders
Licensed Site Professional #4414

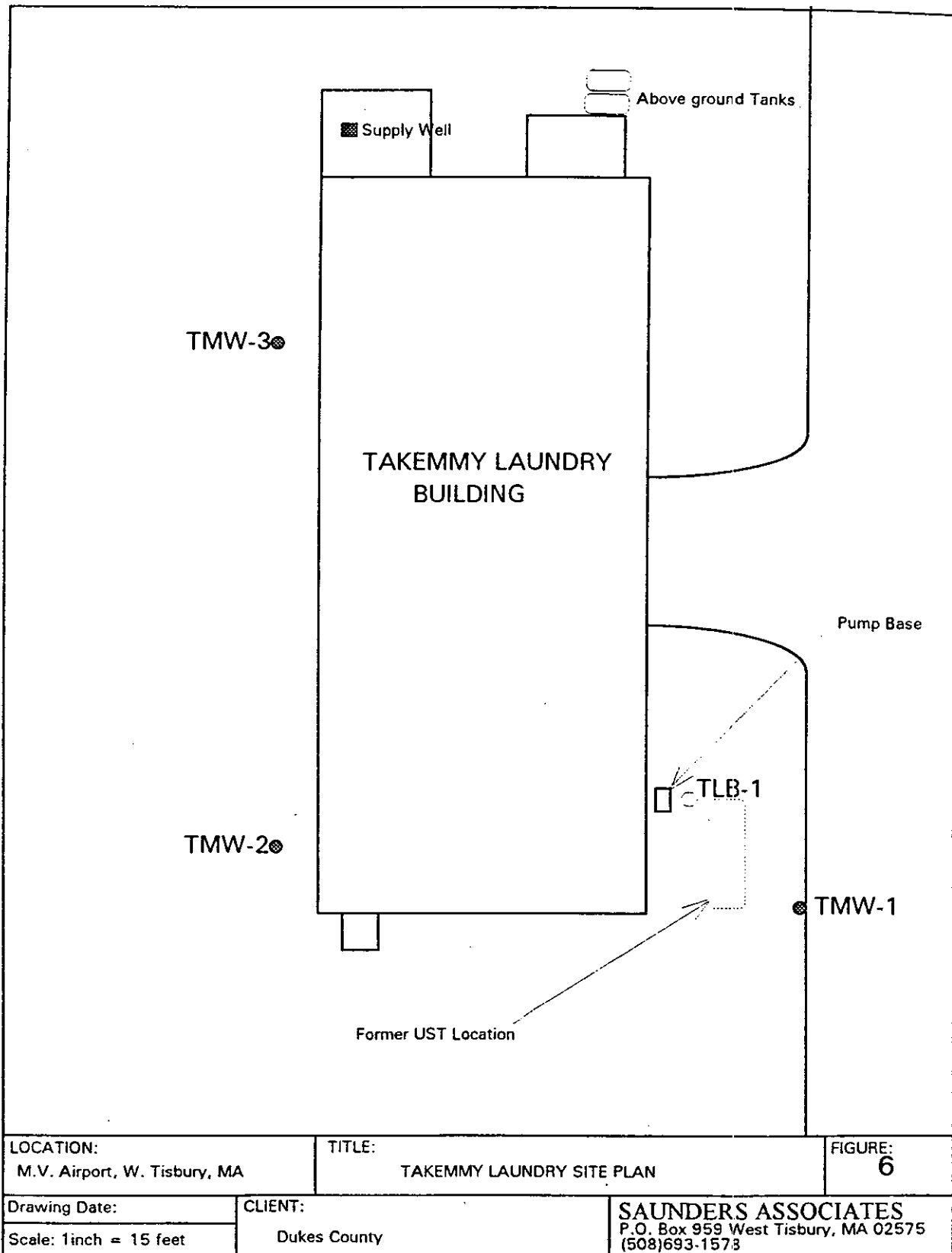
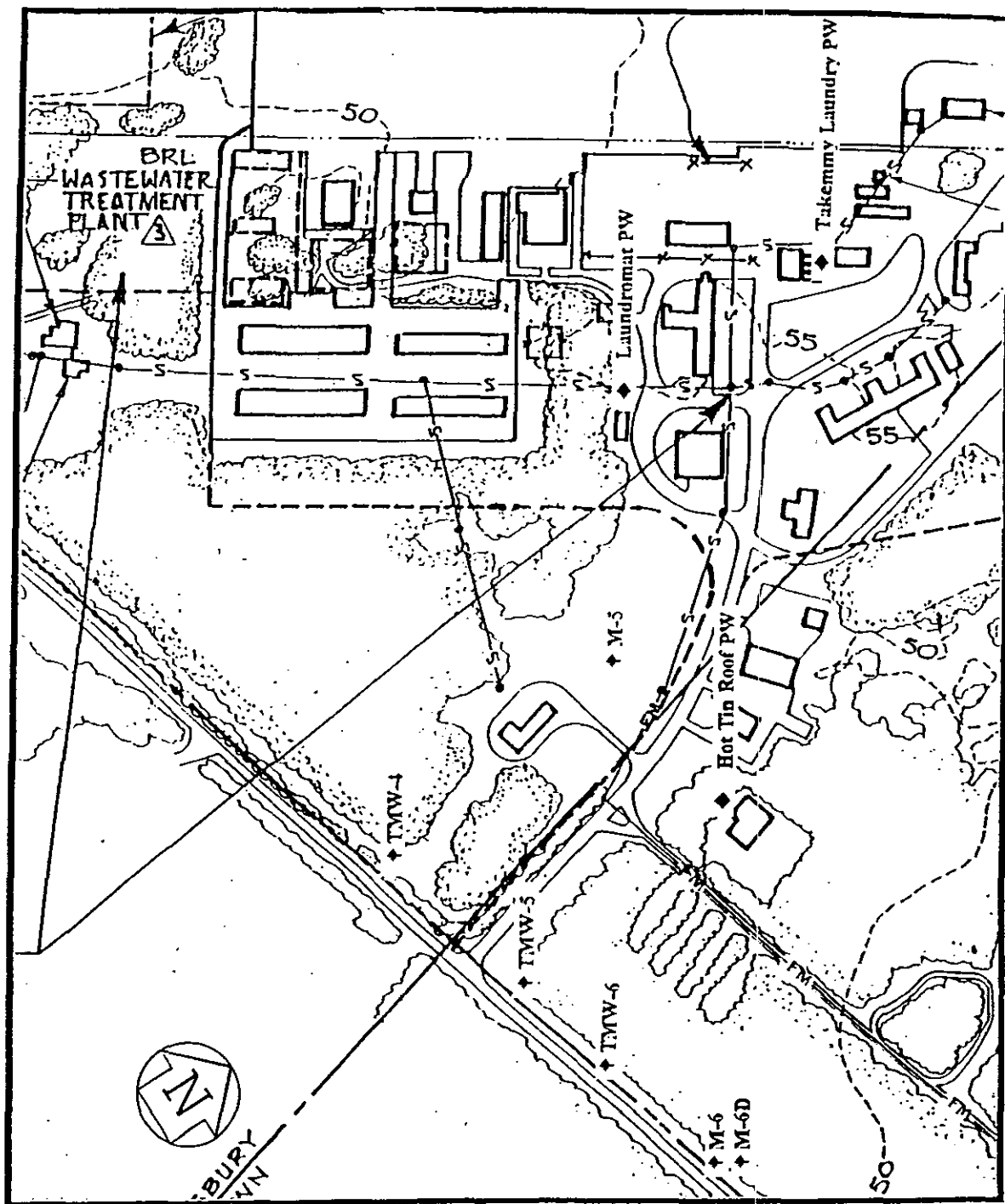


FIGURE 8



**DOWN-GRADIENT PRIVATE AND MONITORING WELL
LOCATIONS**

Scale: 1 inch = 300 feet

Saunders Associates

PROJECT: TAKEMMY LAUNDRYDATE: 4-3-96BORING NO.: TB-1

Field Boring & Monitoring Well Completion Form

SAUNDERS ASSOCIATES

Page

1

DEPTH Feet	S A M P L E	Blow Count	P P M	LITHOLOGICAL DESCRIPTION
0				
10				<u>SM</u> SILTY SAND; medium brown, fine- medium grain sand, moist
		43-3	64	
20				<u>SW</u> SAND; tan, coarse to very coarse grain, interbeds of silty-sand as above, layers of dark gray sand, strong gasoline odor
		13-11/11/1	450	
30				
		6-8-12	452	
40				<u>SP</u> SAND; medium brown, fine to coarse grain, odor, moist interbedded with <u>GW-SW</u> GRAVELLY SAND: white and medium brown, fine very coarse, less odor.
		6-10-12	456	
50				
		5-10-13	449	
		12-17-17-24	460	
		22-30-15-16	370	
				<u>SP</u> SAND; medium brown, medium to coarse grain, wet to saturated, only slight odor, water table near base of sample.
		22-20-15-16	22	
				BOTTOM OF BORING
50				

Logged By: Craig Saunders, Hydrogeologist	Other Comments 1. Location near pump base. 2. Two samples sent for analyses -fingerprint 3. Bentonite seals from 35-40, 20-25 and 5-10.
Drilling Company: Scannell Well Drilling	
Rig/Method: Mobile B56 / Hollow-Stem Auger	
Field Screening: Photovac PID - Calibrated (Isob).	

PROJECT: <u>TAKEMMY LAUNDRY</u> DATE: <u>4-3-96</u> BORING NO.: <u>TMW-1</u>				Field Boring & Monitoring Well Completion Form SAUNDERS ASSOCIATES		Page <u>1</u>
DEPTH Feet	S A M P L E	Sieve Counts	P P M	LITHOLOGICAL DESCRIPTION	WELL COMPLETION	
0					<p style="margin-top: 0;">Flush Manhole</p> <p style="margin-top: 10px;">Locking Well Plug</p> <p style="margin-top: 10px;">2-inch PVC casing</p> <p style="margin-top: 10px;">Bentonite Seal</p> <p style="margin-top: 10px;">Filter Sand</p> <p style="margin-top: 10px;">Bentonite Seal</p> <p style="margin-top: 10px;">37.5 ft.</p> <p style="margin-top: 10px;">2-inch Screen .01 inch slots</p> <p style="margin-top: 10px;">48.5 ft.</p>	
10				<u>SM</u> SILTY SAND: medium brown, dry, with .5 ft. of topsoil, sand is med. to coarse.		
				<u>SP</u> SAND: coarse -v. coarse grain, moist, with beds of silty sand as above		
20		10 11 15	<0.5	<u>SP</u> SAND: med. brown, fine-coarse grain, moist		
30		10 13 14	<0.5	<u>GW-SW</u> GRAVELLY SAND: tan to light brown moist, gravel <.5 inch, well rounded, interbeds of sand, med. to coarse grain		
40		12 17 17 24	<0.5	sample as above with some sand interbeds, thin black organic layer present, no odor		
50		14 18 11 14	<0.5	Bottom of boring		

Logged By: <u>Craig Saunders, Hydrogeologist</u>	Other Comments Location near former tank location
Drilling Company: <u>Scannell Well Drilling</u>	
Rig/Method: <u>Mobile B56 / Hollow-Stem Auger</u>	
Field Screening: <u>Photovac PID - Calibrated (Isob).</u>	

PROJECT: TAKEMMY LAUNDRYDATE: 4-3-96BORING NO.: TMW-2

Field Boring & Monitoring Well Completion Form

SAUNDERS ASSOCIATES

Page

1

DEPTH Feet	S A M P L E	S.W. COUNTS	P P M	LITHOLOGICAL DESCRIPTION	WELL COMPLETION
0					Flush Manhole
				<u>SM</u> SILTY SAND: medium brown, dry, with .5 ft. of topsoil, sand is med. to coarse.	Locking Well Plug
10					2-inch PVC casing
		18:11 11:9	<0.5	<u>SP</u> SAND: coarse -v. coarse grain, moist, with beds of silty sand as above, some cobbles	Bentonite Seal
20					
				<u>SP</u> SAND: med. brown, fine-coarse grain, moist	
30		9 10:10:19	<0.5		Filter Sand
				<u>GW-SW</u> GRAVELLY SAND: tan to light brown moist, gravel <.5 inch, well rounded, interbeds of sand, med. to coarse grain	Bentonite Seal
40					38 ft.
					W.T. -----
					2-inch Screen .01 inch slots
50		17:8 10:9	<0.5		48 ft.
		10:11 11:1	<0.5	Bottom of boring	

Logged By: Craig Saunders, Hydrogeologist

Drilling Company: Scannell Well Drilling

Rig/Method: Mobile B56 / Hollow-Stem Auger

Field Screening: Photovac PID - Calibrated (Isob).

Other Comments

Location behind building east

PROJECT: <u>TAKEMMY LAUNDRY</u>				Field Boring & Monitoring Well Completion Form		
DATE: <u>4-3-96</u>				SAUNDERS ASSOCIATES		
BORING NO.: <u>TMW-3</u>						
DEPTH Feet		S A M P L E	P P M C o u n t s	P P M	LITHOLOGICAL DESCRIPTION	WELL COMPLETION
0						Flush Manhole
10					<u>SM</u> SILTY SAND; medium brown, dry, with .5 ft. of topsoil, sand is med. to coarse.	Locking Well Plug
					<u>SW</u> SAND; tan, fine to coarse, grain, moist, with iron bands, 1 ft. bed for silt as above.	
20			6 11 11 15	<0.5		2-inch PVC casing
30			9 10 13 19	<0.5		Bentonite Seal
40					<u>GW-SW</u> GRAVELLY SAND; tan to light brown moist, gravel <.5 inch, well rounded,	Filter Sand
					interbeds of sand, med. to coarse grain	
50			12 17 17 24	<0.5		Bentonite Seal
40					sample as above with some sand interbeds, thin black organic layer present, no odor	37 ft.
50			17 24 44	<0.5		2-inch Screen .01 inch slots
50						47 ft.
50			14 18 11 16	<0.5		Bottom of boring
Logged By: Craig Saunders, Hydrogeologist Drilling Company: Scannell Well Drilling Rig/Method: Mobile B56 / Hollow-Stem Auger Field Screening: Photovac PID - Calibrated (Isob).					Other Comments Location behind building west.	